

PLANNING CIVILIAN REUSE OF FORMER MILITARY BASES

(2)

DTIC
ELECTE
OCT 05 1990
S B D

AD-A227 410

DTIC FILE COPY



THE PRESIDENT'S ECONOMIC ADJUSTMENT COMMITTEE

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

PLANNING CIVILIAN REUSE OF FORMER MILITARY BASES

**PRESIDENT'S ECONOMIC
ADJUSTMENT COMMITTEE**

**Office of Economic Adjustment
Office of the Secretary of Defense**



SEPTEMBER 1978 *(Revised 1990)*
COMMUNITY GUIDANCE MANUAL II

99 19 04 02

THE PRESIDENT'S ECONOMIC ADJUSTMENT COMMITTEE

- Department of Defense
- Department of Agriculture
- Department of Commerce
- Department of Education
- Department of Energy
- Department of Health & Human Services
- Department of the Interior
- Department of Justice
- Department of Labor
- Department of State
- Department of Transportation
- Department of Veterans Affairs
- Arms Control & Disarmament Agency
- Council of Economic Advisors
- Environmental Protection Agency
- Federal Emergency Management Agency
- General Services Administration
- Office of Management & Budget
- Office of Personnel Management
- Postal Service
- Small Business Administration

The Economic Adjustment Committee was established in March 1970 to assist in the alleviation of serious economic and social impacts that result from major Defense realignments. The role of the inter-agency Economic Adjustment Committee was strengthened by President Carter in his Executive Order 12049, dated March 27, 1978, to provide a coordinated Federal response to the Defense adjustment needs of the states and local communities. The Secretary of Defense is the Chairman of EAC and the Office of Economic Adjustment serves as the staff of the Committee.



THE OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-4000

FORCE MANAGEMENT
AND PERSONNEL

August 1990

Community Officials and Leaders:

This 1978 manual, "Planning Civilian Reuse of Former Military Bases," has been revised and republished to provide useful background information about converting former Defense installations to productive civilian uses.

The manual reflects the collective advice and judgment of many community leaders who made productive civilian uses of military bases during the 1960s and 1970s. It focuses on the conversion efforts that normally occur during the first few years following a base closure. This information has withstood the test of time. It is most useful when read in conjunction with another current Office of Economic Adjustment (OEA) manual that emphasizes long-term real property planning and land use, "Supplement: Planning Civilian Reuse of Former Military Bases."

The ultimate responsibility for any community's economic health rests with its leadership. Affected community leaders should therefore be familiar with the general principles and experiences gained by other communities where former military bases were successfully converted to viable commercial and industrial applications.

Surplus Defense bases often represent the largest single block of land available in a community for development in many years. Few communities can alone plan for and develop major land parcels and improvements so influential to their future vitality. The member agencies of the Economic Adjustment Committee (EAC) and OEA will assist you in your efforts to affect a successful reuse effort. You may also wish to obtain professional development, engineering, and planning advice. Many communities became much stronger after adapting a nearby military base to commercial activities. Yours can be too.

A handwritten signature in cursive script, reading "Robert M. Rauner", is positioned above the printed name.

Robert M. Rauner

Director

Office of Economic Adjustment

ACKNOWLEDGEMENTS

This manual is intended to summarize the experience of the past 17 years in the conversion of former Defense facilities to civilian uses. The author benefited from several of the early OEA community base reuse plans prepared by William J. Sheenan and the collective development experience of the OEA staff. The section on Base Re-engineering was based on the comments of Robert McAuliffe, Vice President, Wilson & Company - Engineers & Architects in Salina, Kansas. The discussion on industrial park railroad design reflects the insights of James R. Scott, Vice President, Real Estate & Industrial Development of the Sante Fe Railway.

Valuable comments and suggestions, based on their own experience in converting former Defense bases, were provided by the following community leaders: Jerry Chapman, Executive Director, Texoma Regional Planning Commission in Denison, Texas; J. S. "Red" Cleveland, Director of Aviation, Sanford Airport Authority, Sanford, Florida; Albert J. Durham, Director, Rutherford County-Smyrna Airport Development, Smyrna, Tennessee; Gordon R. Davis, Executive Director, Glynn Development Authority, Brunswick, Georgia; Frank A. Farnsworth, Administrative Director, Johnson County Airport Commission, Olathe, Kansas; Edward J. Ferraro, City Manager, Torrance, California; Rollard A. Harr, Executive Director, Lincoln Municipal Airport, Lincoln, Nebraska; Robert L. Mandeville, Director of Airports, Reno, Nevada; Vincent H. McGovern, Executive Director, Westover Metropolitan Development Corp., Chicopee, Massachusetts; David M. Nowlin, Manager, Mobile Aerospace Industrial Complex, Mobile, Alabama; Gail R. Peck, Airport Director, Laredo International Airport, Laredo, Texas; Gary W. Richert, Executive Director, Metropolitan Topeka Airport Authority, Topeka, Kansas; John F. "Mike" Scanlon, Executive Vice President, Salina Airport Authority, Salina, Kansas; Art Shew, Executive Director, Pondera County Economic Development Corp., Conrad, Montana; Leland F. Smith, Executive Director, Development Authority for Tuscon's Economy, Tuscon, Arizona; John S. Stiff, City Manager, Amarillo, Texas; Dale Stringfellow, President, Benicia Industries, Benicia, California; Mark S. Viets, Director-Principal, Peckham-Guyton Inc. Architects, Kansas City, Missouri; Michael Westgate, Executive Director, Boston Economic Development & Industrial Corporation, Boston, Massachusetts; and Ellis H. White, Mayor, Mineral Wells, Texas. Helpful suggestions were also provided by James Buckley of the General Services Administration, as well as from the OEA staff.

The manual was written by Dr. John E. Lynch. The author is especially indebted to Mr. William Sachs for his counsel in the preparation of this manual.

Table of Contents

	Page
I. Introduction	1
II. Development Strategy	3
III. Base Reuse Planning Objectives	6
IV. Land Use and Property Acquisition	8
V. Overall Design Elements	13
A. First Planning Steps	13
B. General Design Elements	14
C. Base Re-engineering	15
D. Initial Financial Aspects	15
E. Overall Design — A Case Example	17
VI. Specific Design Criteria	19
A. Block and Parcel Design	19
B. Street and Service Roads	21
C. Rail Service	21
D. Grading and Storm Drainage	23
E. Utility Services	24
F. Incremental Development of Industrial Land	24
VII. Innovative Base Design	26
VIII. Conclusion	28
Appendix A: Executive Order 12049	
Appendix B: Summary of Completed Military Base Economic Adjustment Projects	
Appendix C: "Old Bases should be recycled," <u>City & State</u> "Cities Discover Boons In Closed Military Bases," <u>New York Times</u>	
Appendix D: Disposal of Surplus real Property for Public and Private Use	
Appendix E: Standard Lease and Purchase Agreement for the Westover Metropolitan Corporation	
Appendix F: Santa Fe Railroad Specifications for Industry Track Construction	



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>per letter</i>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

PLANNING CIVILIAN REUSE OF FORMER MILITARY BASES

Introduction

Military base closures are often viewed as a serious threat to a region's local economy. Defense base closings can also offer an unprecedented opportunity to restore the economic health of the community, prompt new industrial development, provide improved public services, and encourage long-term economic growth.

Surplus base facilities often represent the largest single block of land resources to become available to the community for many years. Few communities have the opportunity to plan properly the use of large contiguous land parcels which can thereby influence and stimulate the community's potential development. For these reasons, the leadership of the impacted community should focus its early attention on the formulation of a base reuse plan for the surplus Defense facilities.

The community leadership has the *ultimate responsibility to guide the planning of the new base reuses*. The community itself must determine the appropriate zoning and land uses; provide the public services (i.e., provide the water and sewer services, plow and maintain the streets, and preserve law and order, etc.); and promote the base facilities with new industrial prospects. The community itself must "live with" the final land configuration and uses.

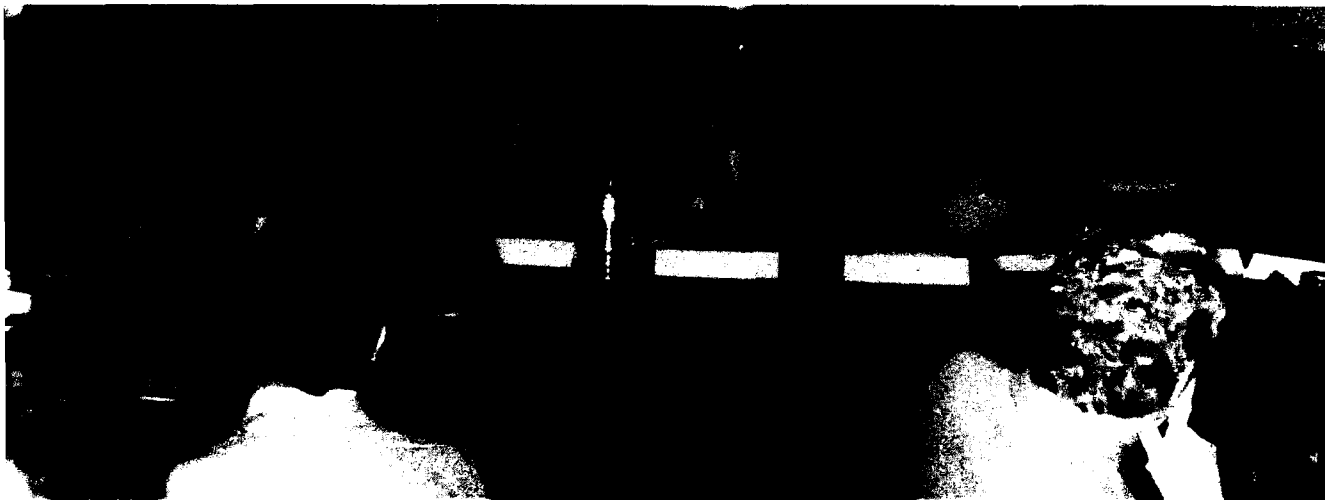
Some communities will retain consultant or architectural/engineering firms to assist them in the preparation of their final base reuse plans. In addition, the member agencies of the Economic Adjustment Committee (EAC) will be willing to advise the community on the federal disposal procedures which can aid the community's ultimate land use and development objectives. Finally, the EAC Economic Adjustment Reports will identify a preliminary base reuse plan as a result of the Office of Economic Adjustment (OEA) staff and consultant deliberations as well as the federal team discussions with the community leaders. Nevertheless, the ultimate responsibility for determining the final base reuses rests clearly with the commu-

nity leadership alone. In this regard, the community should identify its specific goals and objectives in the reuse of the available property to its consultants and the federal agencies as early as possible.

In previous Defense realignment cases, this responsibility for determining the final community base reuse plan has been implemented through a community economic adjustment committee which represents the varied elements in the community on one policy body. The basic concept is to organize the community's key decision makers — public sector and private sector — into *one* comprehensive policy group which



Big Spring/Howard County (Texas) Steering Committee final deliberations on the Webb Air Force Base Reuse Plan.



Deputy Secretary of Defense Charles Duncan and The Assistant To The President For Intergovernmental Affairs, Jack H. Watson, address the April 26, 1978 meeting of the Economic Adjustment Committee.

can determine the community's priorities and guide the development efforts of all supporting agencies and organizations within the community. The coordinating committee provides a means by which the community can resolve its alternative uses for the base facilities and can speak with one voice with respect to its development needs. In commenting on an early draft of this report, one community leader, who was just completing the base reuse process, observed¹:

"The composition of the community economic adjustment committee ... is probably the single most important initial action facing a community involved in a base closure. If the composition involves people well-oriented in business and economics who understand the local and regional economy, rather than political patronage-type appointments, many of the pitfalls may be avoided and economic recovery can be successful."

To assist community leaders in their overall responsibility for determining the final base reuses, this report will discuss the need for an overall Development Strategy and as well as several Base Reuse Planning Objectives for Former Bases. The report will then discuss Land Use & Property Acquisition Alternatives, Overall Planning Elements, and Specific Design Criteria. Finally, the report will discuss Innovative Design for Former Bases. This report is also being issued as a companion document to a community leaders manual on federal property disposal and community acquisition. This report endeavors to focus on the community design and planning experience gained over 17 years in securing civilian reuse of former Defense facilities.

* One of the best sources for guidance in approaching the base reuse planning effort is the actual experience of other communities with previous comparable base uses. For this purpose, a summary of 75 completed military base economic adjustment projects for the period from May 1961 to February 1977 has been included at Appendix B. This summary identifies the initial military and civilian jobs losses, the replacement civilian jobs, the principal industrial/commercial/public reuse activities, the major land reuses, and the individual community contact who can furnish additional information for each of the 75 base closure situations.

A total of 78,765 civilian jobs has been generated on the 75 former Defense facilities as of February 1977 replacing the loss of 68,800 DOD civilian or contractor jobs. Industrial parks had been established at 47 of the former bases; three others were being operated as private sector industrial plants.

Thirty-one of the former bases were being used as municipal or general aviation airports. Seven four-year colleges and 26 post-secondary vocational-technical institutes had been established at the former bases with 52,512 students. Another 4,215 secondary vo-tech students and 5,309 trainees were also receiving education and training at the former Defense bases. The experience of the previously impacted communities demonstrates that former Defense bases do have a significant civilian reuse potential when properly planned and redeveloped.

Great care and thought must be given to the base reuse plan. Like a pattern for a piece of cloth, careful measurement should be given to the entire base design before allocating any individual parcel for a specific purpose that may irrevocably commit or condition other adjoining portions of the former base.

In carefully considering the distinctive assets of the entire site, one authoritative text on industrial park development has summarized the initial task succinctly, as follows:²

"The developer ... must begin by identifying the unique locational characteristics of the site; the types of occupants seeking this location and their space needs; the special physical characteristics of the site to be preserved or enhanced; and the services (needed) to accommodate future occupants ... The plan should reflect the unique factors inherent in the site, and the special requirement for the types of industries which might be attracted to this kind of location."

The civilian reuse of the former military base will often vary significantly from the former Defense mission. As will be noted below, the highway and rail access to the former base may need to be modified substantially to open the facilities for new uses. The base reuse plan must be oriented both to the early productive civilian reuse of the former Defense facilities and to the long-term (20-30 years) development for the community's future needs—especially its job-producing requirements.

It is important to realize that it is vastly more complex and difficult to adapt an industrial park design or a public use design to a former military base than to develop a master plan for a purpose on raw acreage. The reasons are manifold and relate to the age of the facility, limited road access, internal utility lines and road patterns which may not relate to new civilian uses, the lack of internal lot and parcel boundaries, and occasionally inadequate engineering plans for the base.



New plant activities at the Donaldson Center Industrial Park in Greenville (S.C.) showing orderly long-term development.

* See revisions in Appendix B

¹ Vincent H. McGovern, Executive Director, Westover Metropolitan Development Corporation. Letter of November 14, 1977.

² Urban Land Institute, *Industrial Development Handbook* (Washington 1975), p. 94.

II. Development Strategy

Many of the final civilian reuses for the available base facilities will be determined by the overall adjustment and development strategy adopted by the community. Among all of the possible diverse options available to the community, the formulation of a development strategy ensures that the community will focus its efforts on those opportunities with the greatest early economic and job generation return — both immediate and over the long-term. The development strategy forces a community to define "what it wants to be" and to identify the means or steps for achieving these objectives. The development strategy is essentially a plan of where the community wants to go and how the community will get there. The development strategy for Defense impacted communities serves three basic purposes:

- **Saves Time:** The community should concentrate its attentions on those economic sectors with the most likely "fit" in relation to the area's assets. Time is especially critical for the Defense impacted community. The early recovery steps should be effected prior to the actual base or activity phase-down. The out-migration of talented local residents could otherwise represent a very difficult loss to the long-term recovery and growth of the area.
- **Saves Resources:** The community should not allocate vitally needed local (or federal-state) resources and investments on unlikely approaches for the specific region.
- **Saves Talent:** The most precious local resources are the time and attention of its local leaders. Without a development strategy, these resources can be readily exhausted by the failure of the community's first ventures during the recovery or adjustment process. It is essential that these first recovery actions be successful and lend themselves to creating *momentum*.

A development strategy identifies the *distinctive competitive role* which the community should adopt—given its existing and potential resources—in serving the surrounding regional and national economies. In what roles and what activities can the community be most effective? What types of new outside growth industry should the community seek? What major area trade center role should the community adopt? What work force and human resource assets should the community emphasize? What natural resource can be used to provide new markets for the community? What distinctive locational assets (if any) should be emphasized?

In formulating this specialized community strategy, it is also important that careful attention be given to several long-term regional development objectives:

- To diversify the economy away from a few dominant industries (including the former Defense installation and Defense contract activity).
- To encourage balanced growth in the area's economy, including commercial and service sector jobs (the major growth area in our nation's economy).
- To provide employment opportunities for the region's unemployed and under-employed persons and for young high school and college graduates who prefer to remain in the area.
- To provide job opportunities for secondary workers in the region.
- To strengthen the local tax base (normally, a very secondary objective to new jobs).
- To seek selectively higher skill industries with gradually rising technology levels (and higher wage rates).



Drafting classes at Western Nebraska Technical College in the former Sioux Army Depot, Sidney, Nebraska.

- To replace jobs which are declining nationally (e.g., agricultural jobs) or through normal attrition.³
- To help existing industries expand.
- To increase, in summary, the per capita income level for the region.

In identifying the types of selective new industrial and economic activity which the community should seek as the basis for its development strategy, the community should compile a list of specific industrial categories which likewise offer the greatest likelihood of being attracted to the region and to the base facilities. This identification of specific industrial or economic categories (generally by Standard Industrial Classification) is known as a community *industrial profile*. OEA and Economic Development Administration (EDA) assistance can be provided in the preparation of this profile. The industrial profile uses the distinctive work force characteristics, the community transportation and locational assets, its natural resources, the types of available base facilities, and other economic assets to identify the specific industrial categories on which the subsequent industrial solicitation program should be focused.

A community development strategy also provides a blueprint as to how the community should reshape its public services, its commercial development, its housing stock, its transportation services, its tourism and recreational resources, and its educational and health resources, among others. The development strategy recognizes that new growth and new job opportunities occur when change and improvements are being made throughout the *entire* community—not merely on the former base itself.

In a healthy regional economy, the marketplace itself provides adequate signals for new business activity and new private sector investments. When these market signals have been interrupted by a major employment or economic loss, economic confidence can be restored through the formulation of a well-conceived development strategy by the local community leadership which offers promise of success and which then gains momentum when the initial adjustment actions are successful. Most importantly, the development strategy provides a basis for renewed private sector confidence and new business investment which normally fuel the regional recovery.

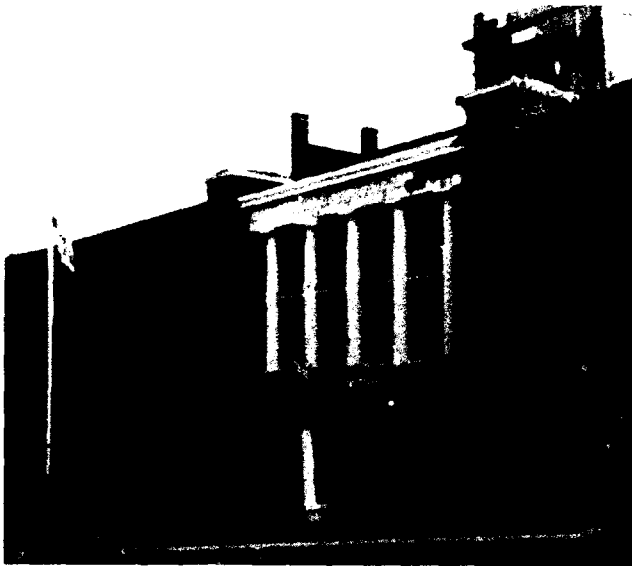
³ On a normal annual basis, nearly one existing job in twelve (8%) is eliminated from the nation's employment roles each year through attrition and turn-overs without replacements.

The central importance of the community development strategy has been best expressed by one authority as follows:⁴

"It is apparent, when one begins to analyze the functions of development organizations, that far too few organizations have attempted to define an overall strategy and to identify feasible approaches to accomplishing some of the short-term, as well as the long-range, objectives."

In formulating a distinctive development strategy, several of the previous Defense impacted areas have concentrated on the following general strategy categories or combinations thereof:

- **Human Resource Development:** As identified in Appendix B, 32 of the former Defense base facilities have been used for major vocational-technical educational centers or institutes which have significantly upgraded the skills of the area work force as a permanent attraction to new industry. New vocational-technical education has been one of the key elements in the strategies employed by Springfield, Massachusetts; Roswell, New Mexico; Waco and Amarillo, Texas; Wilmington, Ohio; and many of the other Defense impacted communities. Several of the communities have progressively raised the technical skill levels of the new industries attracted to their areas.



Springfield Community Technical College at the former Springfield Arsenal.

- **Existing Workforce Skills:** The existing DOD workforce may possess strong technical job skills which may be immediately attractive to new private sector firms. Mobile, Alabama was able to attract a new aircraft overhaul operation with Continental Motors to replace in part the former Air Force depot activities at Brookley Air Force Base. AMF was attracted to York, Pennsylvania by the availability of highly skilled machinists at the former Naval Ordnance Plant.
- **Geographic Location:** Careful consideration should be given to the community geographic setting—even when the community is not located near a major market area. Ogden, Utah has been successful in attracting new plants as a result of its strategic location equidistant to the Los Angeles, San Francisco, and Seattle-Tacoma metropolitan areas. The small, distant community of Conrad, Montana was able to reuse the former Anti-Ballistic Missile sites to attract branch plants of Canadian firms across the U. S.-Canadian



Isolated Conrad (Montana) Site attracts Canadian firms.

border which were anxious to enter the U. S. markets. Bangor, Maine discovered that the former Dow AFB was located on the closest direct line of flight to Europe from the East Coast.

- **Market Center and Market Location:** Many of the previous Defense impacted communities have emphasized and have strengthened their roles as market centers for the surrounding region. Wichita, Kansas improved its highway access to the central business district, constructed new sports facilities, opened new industrial parks, and strengthened its role as a trade center for the surrounding South-Central Kansas region. Wilmington, Ohio emphasized its key location midway between the Columbus, Cincinnati, and Dayton markets.
- **Natural Resources:** Several of the Defense impacted communities have exploited previously untapped natural resources. Presque Isle converted its wood resources and its annual potato crop into year-round processing activities within the community. Edgemont, South Dakota discovered that its most difficult liability — hot, highly corrosive well



Cattle feeding at the former Edgemont Army Ammunition Depot.

⁴ Robert B. Cassell, "Research for Industrial Development," in Dick Howard, ed., *Guide to Industrial Development* (Englewood Cliffs, N.J.: Prentice-Hall, 1972), p. 119.

water — was actually a major asset for the feeding and water of cattle and hogs at the former Army Ammunition Depot. Key West, Florida is concentrating its development efforts on the processing of seafood from the Gulf of Mexico. Lassen County, California is exploiting its geothermal resources as a new, inexpensive source of power and industrial heat.

- **Historic Development and Tourism:** Burlington, New Jersey and Key West, Florida have both undertaken exten-



Redevelopment of Key West Historic District after Navy base closure.

sive redevelopment of their historic shopping and residential neighborhoods as one of the key elements in their recovery strategies. Stockton, California has emphasized its ethnic holidays and celebrations as the keystone for its tourism promotion effort. Stockton has also directed its tourism program toward encouraging travellers from Washington, Oregon and Canada to remain for a few days in the area while travelling to Southern California and Mexico.

- **Retirement Communities:** Roswell, New Mexico and Harlingen, Texas have used the extensive family housing at the former Walker AFB and Harlingen AFB as new retirement communities. The program at Roswell was strengthened also by the health and rehabilitation education programs at Eastern New Mexico University on the former Walker AFB. Hastings, Nebraska was also successful in using the housing and hospital facilities at the former Hastings Depot as a retirement and extended care center.



Good Samaritan Society Retirement Home at the former Hastings (Nebraska) Naval Ordnance Depot.

- **Recreation:** Torrance, California determined that the former Naval Supply Center should be used as a municipal recreation center to provide adequate recreational facilities for its industrial leagues — as one means of retaining its existing large industrial base.

- **Nature of the Base Facilities:** The specific nature of the available base facilities may itself suggest the development strategy or the types of industry toward which the industrial solicitation or marketing program should be directed. In the case of Presque Isle, Maine, the elongated former Snark missile hangers proved to be highly attractive industrial structures for processing the region's wood resources into plywood, corrugated boxes, and modular homes. Two large warehouses at Olmsted AFB (Harrisburg, Pennsylvania)



Fruehauf Container Plant at the former Olmsted AFB.

were highly suited to the manufacture of freight containers and van trailers by Fruehauf. The existence of avionics "clean room" facilities at Brookley AFB (Mobile, Alabama), as well as the skilled work force, represented a strong inducement for Continental Motors to establish a national aircraft overhaul facility. The opportunity to retain production equipment and tooling as related property results in new private sector firms having access to a fully operational facility. During the property transfer phase, new firms can often be accommodated through interim use arrangements. Existing operational facilities often hold a strong attraction to carefully selected, expanding industry.⁵

- **Spin-Off Industrial Activities:** Amarillo, Texas discovered that its location was midway between the copper mines of Arizona and New Mexico and the industrial markets of the East. Amarillo also enjoyed good natural gas resources which prompted the establishment of a new, large copper refinery (420,000 tons per year). The refinery also resulted in the spin-off location of a casting plant for wirebar and cast billets and a new, continuous length copper rod mill. The new refinery also produces a wealth of byproducts: silver, gold, platinum, palladium, nickel salts, selenium and tellurium.

It is important to emphasize that the development strategy represents the general theme or direction toward which the community should be guiding its future. The development strategy enables the community to concentrate its energies on those specific approaches which offer the earliest competitive return in relation to other communities — both regionally and nationally. The development strategy will also strongly influence the eventual base reuse plan for the available base facilities. In summary, it is a blueprint for the recovery and future growth of the impacted community.

⁵ Examples of eleven companies which have located at former Defense facilities are included in "When Plant-Site Seeking Can You Find Happiness at a Defense Installation?", *Area Development*, January 1977, pp. 14-54. Reprinted at Appendix C.

III. Base Reuse Planning Objectives

The community base reuse plan will involve a number of trade-offs not merely in terms of alternative land uses but also in terms of community objectives. The community economic adjustment committee should adopt its explicit set of principles or objectives (with appropriate weights of importance) based on its development strategy before approaching the actual allocation of land uses in the base reuse plan. Several of the key land use and planning objectives of the community should be as follows:

- **Employment:** One of the prime objectives should be the replacement of DOD civilian job losses. The committee should realistically assess each proposed use or user of the potential industrial acreage (or buildings) on the basis of the number and skill level for full-time permanent jobs that the facilities can generate. Wherever possible, labor intensive industry should be emphasized during the early adjustment process. Firms with significant secondary or spin-off demands for services and component parts should also be emphasized. Priority attention should be given to the placement of former DOD workers in new job openings at the base. Several of the communities have varied the initial lease prices in accordance with the number of jobs generated by the prospect. In the case of Mobile, Alabama:⁶

"The City took over the base in July 1969 and immediately started to take on tenants. Rental rates were negotiable, the more the employees—the less the rent, i.e., manufacturing space with 50 employees would rent for \$.35 per square foot while warehouse space with 3 employees leased for \$.55. Most buildings were leased in an 'as is' condition with the tenant responsible for maintenance."

In the case of the reuse of Schilling AFB by the City of Salina, Kansas:⁷

"... Beech Aircraft Company put in hundreds of workers and the Authority gave a low square foot per building rental rate. Beech has since taken additional buildings at fair market prices and has increased its labor force."



Beechcraft Assembly Plant at the former Schilling AFB.

- **Public Uses:** Many former bases are small, self-contained cities with extensive health, recreation, education, housing, and other services for the former base population. Whenever possible the base reuse plan should take advantage of these resources to create a *multi-purpose* design and multi-purpose land uses which are mutually reinforcing. The available base facilities also represent an unprecedented opportunity to satisfy existing needs of the city, county and state for improved public services—often at a public benefit discount. The use of former classroom and barrack facilities for new vocational-technical schools or colleges as well as

research and training facilities at 48 former bases has served to upgrade local job skills as a strong attraction to new industry. The retention of adequate recreational facilities and green spaces can upgrade the tenor and attractiveness of the entire facility. New airport facilities and improved health care facilities can also strengthen the community's competitive position. In summary, public uses can improve the overall attractiveness of the entire base to outside prospective firms.



Paramedic/Firefighting Facility at the former Malibu (California) Nike Site.

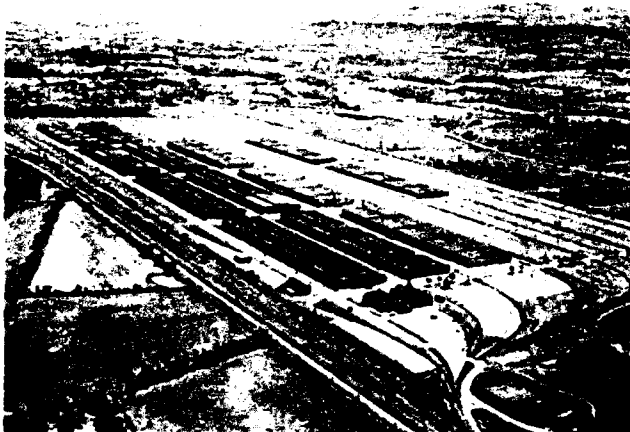
- **Highest and Best Use:** Closely related to the objectives of maximizing employment opportunities and improving available public services, the local adjustment committee should develop firm and objective criteria for the use of various parcels and buildings. The committee should be reluctant to release or approve uses which are significantly less labor intensive for each parcel or building merely for the purpose of "filling the base up" rapidly. Care should be given against committing excessive facilities or acreage to individual prospects without solid commitments of expected uses or anticipated job levels. Significant differences in site characteristics will exist within the overall industrial and other land use areas so that individual prospects can be directed or "steered" to a most suitable site for their needs without committing the most attractive buildings and acreage which may be more usable for other purposes. The "highest and best use" is also a term from the public appraisal profession to denote the greatest overall return from a specific parcel or building.⁸ The committee should endeavor to secure the highest overall "return" from its land use plan in terms of employment, public services, sale and rental proceeds, and other amenities.

⁶ David M. Nowlin, Manager of the Mobile Aerospace Industrial Complex. Letter of November 17, 1977.

⁷ John F. (Mike) Scanlon, Executive Director, Salina Airport Authority, Salina, Kansas. Letter of October 17, 1977.

⁸ "Highest and Best Use" is defined as "that use, from among the reasonably probable and legal alternative uses, found to be physically possible, appropriately supported, and financially feasible, and which results in the highest land value. ... Implied within this definition is the recognition of the contribution of that specific use to the community environment or to community development goals in addition to wealth maximization of individual property owners (emphasis supplied)." Byrol N. Boyce, *Real Estate Appraisal Terminology* (Cambridge, Massachusetts: Ballinger Publishing Co. 1974), p. 107-8. See also: American Institute of Real Estate Appraisers, *The Appraisal of Real Estate* (Chicago: 1967), pp. 131-32.

- **Transportation Access:** The eventual design of the former military base will be conditioned by the need for new road (and sometimes rail) access to the property. While base security requirements may have restricted public access to the former base, conversion of the base to civilian uses will most likely require *new multiple* access to the base facilities, direct connection to nearby arterial highways, and the abandonment of excessive or unneeded roads on-base which may hinder the full development of key parcels. Redesign of individual rail lines may be required in order to avoid blocking the main roads on the base. Steps should be taken to include the former base within the reciprocal switching limits when the community is served by two or more railroads. It is important to note that the base reuse plan must recognize the development environment outside the base boundaries.
- **Quality Environment:** Care should be given to providing adequate open space (often recreational areas) and buffer areas between competitive uses. Each proposed use or occupant should be assessed from the standpoint of compatibility with other uses for the former base, especially in terms of excessive traffic on individual road segments, noise, smoke, and effluent wastes, etc. Eventually, these environmental quality features can be defined in performance standards or in covenants and restrictions for the reused base facilities.



Preservation of a quality environment at the Northeastern Industrial Park, previously the Voorheesville (New York) General Depot.

- **Compatible Land Use with Surrounding Properties:** Closely allied with the objective of quality environment above, the base reuse plan should in general be consistent with the land uses for the areas surrounding the former base — even while recognizing that the development of the former base will often enhance the value and use of the adjoining properties.⁹ Planning for the compatible use of airfield facilities is especially demanding:¹⁰

"Planning must protect the community against encroachment of airfield facilities both on the base and within the community. Proposed long-term aviation development must be closely coordinated with the community residential and commercial growth to protect long-term airport development."

- **Changing the Base Image To A Civilian Facility:** One of the most difficult challenges from the onset is to change the overall appearance of the military base to a new civilian enterprise. At the beginning, careful plans should be made to alter the image of the facility through the selective razing of unneeded buildings, and (most importantly) developing new entrances to the facility. On occasion, it may be neces-

sary to subject the military appearance of the former base to "radical surgery" — including even changing the name of the facility (together with a new "logo"). For instance, an extensive area of the older wooden structures at Brookley Air Force Base had to be removed during the early course of converting the base into the Mobile Air Industrial Center. Similarly, the "Tumpane Facility" at the DOD Industrial Production Equipment Storage and Maintenance Center in Terre Haute, Indiana was transformed into the "Fort Harrison (historic name in the region) Industrial Park."

- **Cash Flow and Minimum Community Development Costs:** While this principle may be partially competitive with several of the objectives above, the community is faced with the reality of maintaining and servicing the base facilities and utility systems, meeting the debt service and interest costs for purchase areas, and effecting the necessary capital improvements. The availability of public benefit discount conveyances for portions of the property may reduce these overall direct costs to the community. However, the community should balance these immediate cost savings against the long-term needs for adequate industrial commercial parcels which the community can use without deed restrictions for job-producing purposes. The community must also ensure that tenant rental and sales proceeds are sufficient to meet continuing operating costs with the phased programming of new capital improvements. New prospects should be oriented toward industrial parcels already serviced by existing roads and utilities rather than committing the community to undertaking costly extensions to remote and isolated parcels. The community should plan for a gradual and staged extension of water, sewer, and utilities to the new industrial sites.



Dallas-Airmotive modern addition to hangar at the former Harlingen (Texas) AFB.

⁹ The development of former military base facilities has been an inducement in several instances to the development of the adjoining land into complementary industrial park sites. For instance, the creation of the Donaldson Center prompted the development of the adjoining South Donaldson Center for heavy industry with the new Michelin Tire plant and 2,400 new jobs for the Greenville (South Carolina) area. Likewise, as a result of the opening of Lincoln AFB as the Lincoln Municipal Airport and Lincoln Airport West (managed by the Airport Authority), Upland Industries (a subsidiary of Union Pacific) opened its adjoining 178-acre Lincoln Industrial Park. The major firms at the Lincoln Industrial Park include National Cash Register, Mid-America Press, Ace Hardware distributorship, General Cable, and two hotels. At Lincoln Park, the Chamber has attracted Kawasaki and the Jantzen Corporation. See "Nebraska Economy Surges as Leaders Push Industrial Expansion Program," *Plant, Sites and Parks*, July-August 1976, p. 6; Roland A. Harr, Executive Director, Lincoln Airport Authority, Lincoln, Nebraska. Letter of October 3, 1977.

¹⁰ Vincent H. McGovern, Executive Director, Westover Metropolitan Development Corporation. Letter of November 14, 1977.



Modern addition to facilities at the former Hastings (Nebraska) Naval Ammunition Depot financed by new plant owner.

In applying these eight objectives, the community base reuse planning effort should be directed toward the long-term (20-30 year) use of the property. The long-term outlook requires that the community consider the phased opening of new streets to serve new industrial sites, the early programmed demolition of obsolescent or temporary buildings¹¹ and the merchandising of the large contiguous industrial sites available on the former bases. The long-term success of the base reuse plan can be determined by how effectively the communities have planned, developed, financed, and merchandised the available industrial tracts *rather than just how rapidly the community has secured reuse of the existing few prime industrial buildings on the former base.*

It is important to recognize that the quality and tone of the new base redevelopment will be influenced heavily, if not determined, by the first tenant or prospect for the base. For



Bell Helicopter Textron - flagship tenant at the former Amarillo (Texas) AFB.

instance, the location of Union Carbide to the Donaldson Center at Greenville, South Carolina established the atmosphere for subsequent quality prospects such as Hughes Aircraft, LTV, and Norwich Pharmaceutical. The Overseas National Airways aircraft maintenance facilities and Ferno-Washington (a manufacturer of hospital equipment) became the first flagship tenants for the former Clinton County AFB at Wilmington, Ohio. Quabbin Industries, a quality steel boring firm, became the lead industry for the new Westover Metropolitan Development Corporation at the former Westover AFB near Chicopee, Massachusetts. In some instances, it may be appropriate to pre-select a "seed tenant" who will fit the optimal market mix for the development. The Urban Land Institute

has found that "...in addition to the type of tenants attracted by the seed tenant, the size of the seed tenant (operation) seems to have some definite relationship to the (development) pattern which follows."¹²

The community economic adjustment committee should, therefore, be very selective in identifying the first tenant for the base. The initial or flagship tenant need not necessarily receive any special purchase or rental price consideration unless the distinctive nature or location of the facilities dictate otherwise.¹³

The first test in applying the eight general planning objectives will occur in the formulation of the preliminary reuse plan.

IV. Land Use and Property Acquisition

The pivotal step in the civilian reuse of former military facilities is the preparation of the initial base reuse plan by the community economic adjustment committee. The initial base reuse plan provides an identification of the major *land use areas* so that they may be considered for sale or conveyance to the community by the General Services Administration and the federal agencies. The base reuse plan is also the instrument by which the necessary equipment and personal property can be related to the real estate and can be retained for civilian uses.

The initial base reuse plan is a representation of the community development strategy in terms of how the base property can be effectively used to achieve the community's economic recovery and long-term growth.

The issues related to the acquisition of surplus federal property are sufficiently complex that a separate companion manual has been prepared to assist the impacted communities. This current report is intended to discuss the property acquisition and conveyance process only from the viewpoint of the base reuse planning and the related community recovery efforts. One air industrial park manager, who had just completed the property acquisition phase commented:¹⁴

"One of the early steps in the base reuse planning process is to have the GSA and other EAC agency representatives sit down with the local coordinating committee and explain in detail the legal disposal process. The local full-time coordinator should be a walking encyclopedia on the federal disposal process."

¹¹ Temporary structures with significant usable life can be used as "incubator" facilities to attract new customers and to generate a cash flow during the initial operating years for the former base. In general, old and outmoded buildings, however, can readily absorb available maintenance (unless rented on a net-lease basis—discussed below) and can detract from the long-term appeal of the former base to new prospects. Often, the net proceeds from the disposal sale of older buildings can be used for other permanent improvements. Finally, the removal of outmoded structures can markedly reduce costs for insurance, security, and fire protection. In redeveloping the former Perrin AFB, the Texoma Regional Planning Commission in Sherman-Denison, Texas formulated a multi-year program for the orderly off-site removal of the temporary barracks facilities. Jerry Chapman, Executive Director, Texoma Regional Planning Commission, Sherman, Texas. Letter of October 11, 1977.

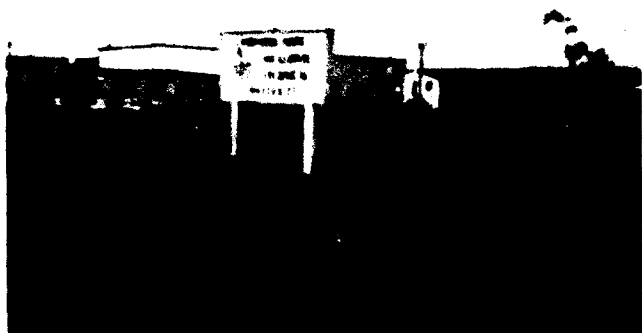
¹² Urban Land Institute, *Industrial Development Handbook* (Washington 1975), pp 191-92.

¹³ For instance, in attracting Cascade Coach Company, a recreation vehicle manufacturer, to the isolated warehouse at the former Anti-Ballistic Missile site near Conrad, Montana, the Pondera County Economic Development Corporation offered highly attractive terms so that the first tenant was on site rapidly, thus overcoming the impression of isolation for future prospects. Arthur Shew, Executive Director, Pondera County Economic Development Corporation, Conrad, Montana. Letter of October 28, 1977.

¹⁴ Gordon R. Davis, Jr. Executive Director, Glynn Development Authority, Brunswick, Georgia. Letter of October 21, 1977.

Several land use options and property acquisition alternatives are available to public agencies by statute (generally the Federal Property and Administrative Services Act of 1949) in applying for surplus Federal property. These property acquisition alternatives are defined in further detail at Appendix D. The several mechanisms for acquiring surplus Federal property are summarized as follows:

- **Public Health or Education:** Surplus property for public health and educational uses may be acquired by public agencies and non-profit tax-exempt institutions by deed (over 30 years) from the Department of Health, Education and Welfare at a public benefit allowance of up to 100 percent. In the past, Defense impacted communities have acquired surplus facilities for such varied purposes as vocation-technical institutes, new college campuses, hospitals



Northern Maine Vocational Technical Institute at the former Presque Isle AFB.

and clinics, mental health facilities, youth rehabilitation services, senior citizen service facilities, and new school sites, etc. The former base water system and sewer treatment facilities and easements can also be conveyed through this public benefit conveyance approach. Full ownership of facilities is earned through use over a thirty-year period at the rate of 3⅓ percent of the appraised value of the facilities per year. The principal restrictive requirement is that the property must be used continuously for the specific health and education purpose identified in the community's deed.¹⁶

- **Public Airport:** Former base aviation properties may be deeded to a public agency without cost consideration upon the recommendation of the Federal Aviation Administration. These airport facilities may include the base runways and



Amarillo Air Terminal.

aprons, the flight line hangars and service facilities, *and such revenue-producing land and facilities* for outlease so as to produce current and future rental revenue for the maintenance and operation of a public airport. Property conveyed for aviation purposes must be used to support the public airport (including general aviation airport) and may be resold by the community — only under conditions established by FAA — a very important restriction which will be discussed further below. In general, the amount of revenue-producing property is identified at the time of the original airport conveyance and changes in this revenue-producing area must be justified in terms of the materially-changed circumstances involved.

- **Park and Recreation:** Park areas, waterfront facilities, trail facilities, the golf course, boat marinas, swimming pools, and other recreational facilities can be conveyed to a public agency through the Department of Interior (Heritage, Conservation and Recreation Service) at a discount of up to 100 percent. Park and recreational conveyances must be used for this purpose in perpetuity. It is important to note that the appropriate park land areas can be used to provide needed buffers between other land uses. Also, public recreational facilities are now becoming important inducements (particularly tennis, handball, etc.) in many new quality industrial parks. Stream valley and small lake recreational areas can be important for holding sudden rain runoff and for flood control.



Swimming pool and park facilities at the former Glynco NAS in Brunswick, Georgia.

- **Wildlife Conservation:** Wildlife habitat areas may be transferred by GSA to the appropriate state agency for wildlife conservation purposes without monetary consideration.
- **Historic Preservation:** Property determined by the Secretary of the Interior to be suitable for use as a historic monument or for historic preservation purposes may be deeded by GSA to a public agency without monetary consideration for such historic preservation uses in perpetuity. Buildings and areas designated for historic preservation purposes are generally recorded on the Register of Historic Places, maintained by the National Park Service. Under a new approach adopted by the Department of the Interior, the area designated for historic preservation purposes may include revenue-producing rental property for the maintenance of the

¹⁶ Consideration is being given by GSA and HEW to changing health and education transfers to perpetual or permanent deed conveyances.



Preservation of the Benicia (California) Arsenal Fortress - 1859.

historic facilities. Likewise, the local public agency is also permitted to lease the historic and related buildings for commercial purposes provided the exterior facade of the structures are authentically maintained. In the case of the former Boston Naval Shipyard, the Department of the Interior recommended that GSA convey 30.9 acres to the City of Boston for historic preservation purposes (see Figure 7 below). A 16.4-acre parcel was also conveyed for parks and recreation that adjoined the new Boston National Historical Park (a 24.7-acre area assigned to the National Park Service and the location of the USS Constitution). As an element in the historic redevelopment of the former Shipyard, the city has also attracted a private developer for a \$100 million commercial residential development.

- **Negotiated Sale:** Property may be acquired by public agencies *without deed restrictions* based on the fair market value as determined by the General Services Administration based on the appraisal findings of professional public appraisers. Property acquired through negotiated purchase may be used and resold *without deed restriction* for a wide variety of commercial, industrial, housing, and municipal uses. The negotiated sale and purchase approach permits the community to control the transfer of the former Defense property without the uncertainty of the competitive public bid process as to the ultimate user. The community is entitled to develop, lease, and ultimately resell property acquired through the negotiated sale approach to its own prospects.¹⁷
- **Competitive Bid Sale:** The community may also consider the alternative of having the former base (or designated portions thereof) sold at competitive public bid by GSA *subject to local zoning controls*. GSA can advertise the facilities on a nationwide basis with a public competitive "sealed-bid" sale to the highest bidder. GSA reserves the right to reject offers which are not commensurate with the appraised value of the property. The competitive bid sale approach has the advantage of returning the property promptly to the local tax rolls without development cost to the local community. Aside from zoning, however, the community does not have any influence in the selection of the ultimate use or owner.

Several other types of land/facility acquisition require special discussion. Roads and public streets can be deeded to the local government without cost. Agricultural land may be purchased at negotiated fair market value. Housing must normally be purchased at fair market value from GSA with the proceeds deposited to the Defense Family Housing Account

as a means of meeting the mortgage balances involved.¹⁸



Family Housing at the former Brookley AFB in Mobile, Alabama.

Since property acquisition is a complex subject unto itself, a separate companion community manual has been prepared to guide community leaders. This manual is intended to provide a guide for the *development* of former Defense base facilities.

The basic concept behind the initial base reuse plan is the coalescing of compatible land uses which maximize the community objectives in Section A above. As a case example, the overall base reuse plan for the Clinton-Sherman Industrial Air Park (formerly the Clinton-Sherman AFB) at Burns Flat, Oklahoma is shown in Figure 1 in terms of the various land uses. Approximately 105 acres are devoted to the Western Oklahoma Vo-Tech Education Center, which provides an appropriate buffer between the housing area (73 acres) and the aviation and industrial areas. The flight line facilities and the former SAC alert area (the "Christmas Tree" facilities) have been identified and used for industrial revenue-producing purposes. The stream and lake facilities with the adjoining golf course (301 acres) were retained as a recreational area. The heart of the cantonment or administration area was ultimately purchased for industrial/commercial uses. Likewise, agricultural and grazing land on the west side was also purchased for future possible industrial expansion.¹⁹

In some instances, the highway or rail access may largely define the industrial use areas. As shown in the base reuse for the Skyway Industrial Park at Presque Isle (formerly Presque Isle AFB), Maine in Figure 2, the industrial "buy" area parallels the railway access to the base and includes six elongated former Snark Missile hangars which were highly adaptable to

¹⁷ In some instances, the impacted communities have even retained private firms to plan, redevelop, and manage the former base facilities: Benicia Industries in the case of the former Benicia Arsenal in California; Learjet in the case of the former Stead AFB at Reno, Nevada; Uniroyal in the case of the former Erie Army Depot at Port Clinton, Ohio; and the Morrison Group in the case of Black Hills Army Depot near Edgemont, South Dakota. This approach involved a limited local financing commitment beyond the purchase of the property from GSA with the community's providing its developer-prospect with a long-term lease-purchase option.

¹⁸ Many communities have secured reuse of former Defense housing under a Protection and Maintenance Agreement pending the community purchasing the housing after its local housing authority has a sufficient tenant cash flow for operating and maintenance as well as debt service.

¹⁹ In the case of several other municipal airports in rural areas (e.g., Sherman-Denison, Texas; Salina, Kansas; Glasgow, Montana, etc.), agricultural land has been retained in the aviation revenue-producing property area and has been leased to provide rental income for support of the airport.

FIGURE 1
CLINTON-SHERMAN AIR INDUSTRIAL PARK
BURNS FLAT, OKLAHOMA

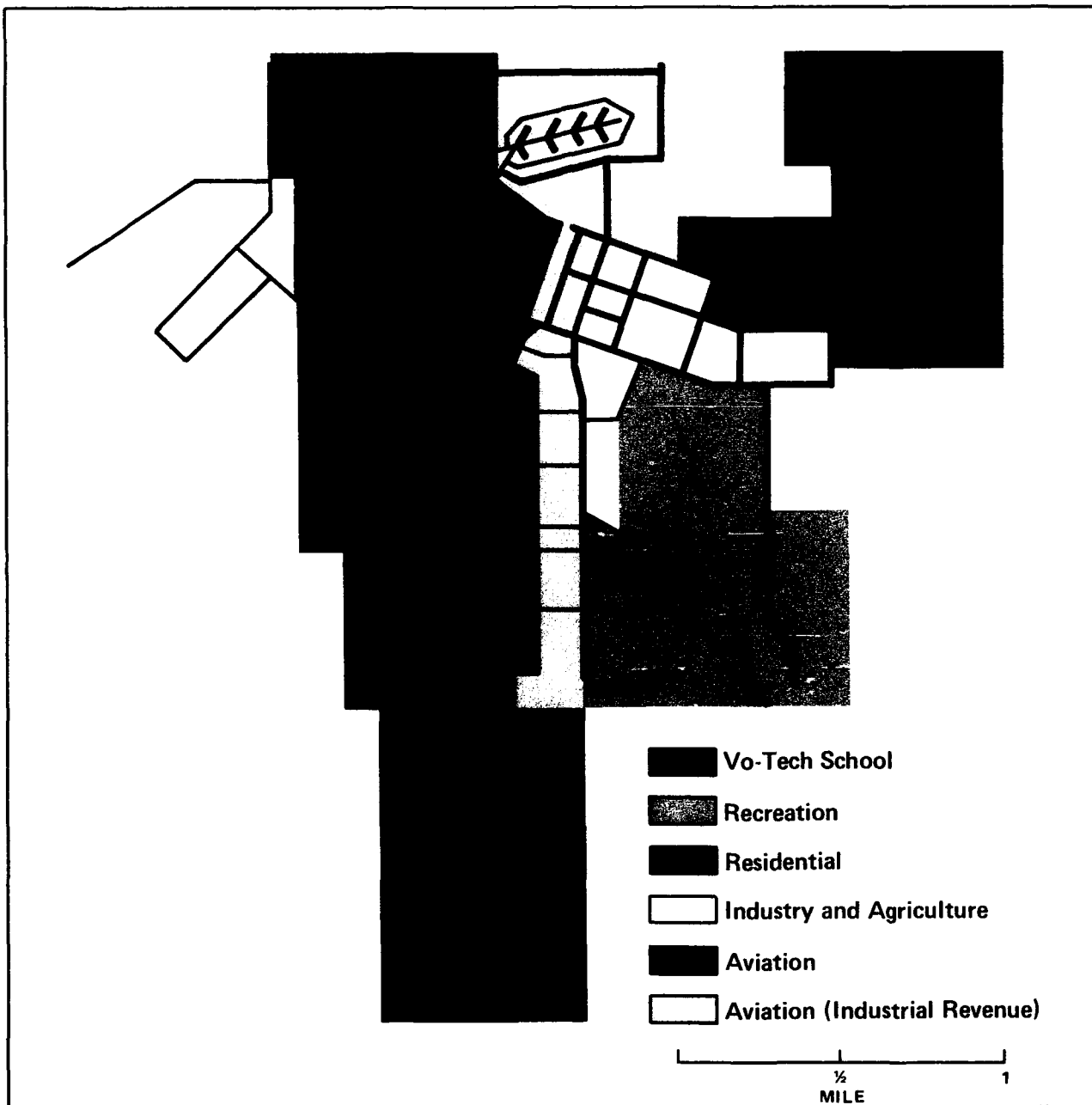
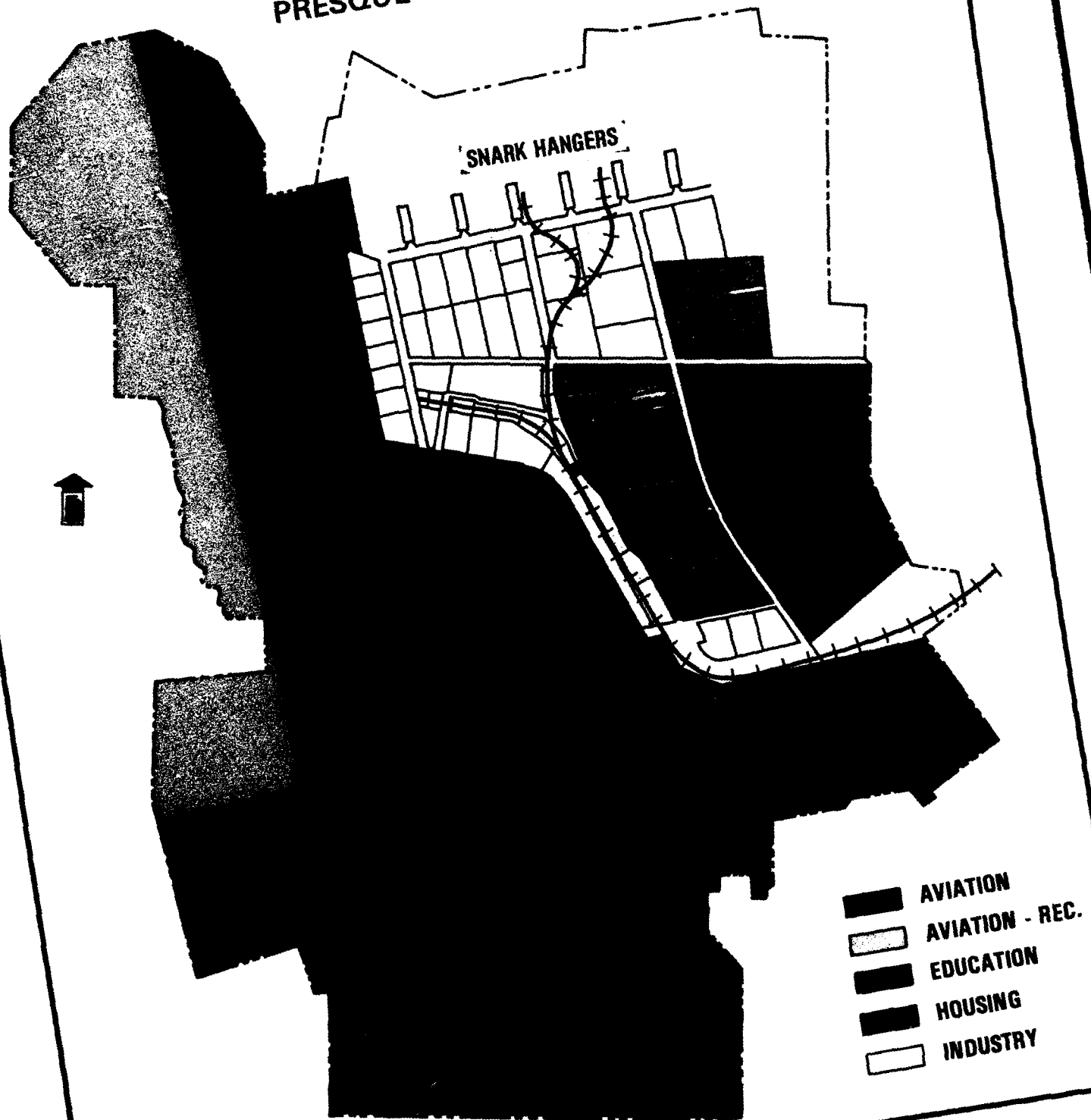


FIGURE 2
 SKYWAY INDUSTRIAL PARK
 PRESQUE ISLE, MAINE



industrial reuse. Four large aircraft hangars have also been converted to industrial uses and have been retained in the airport revenue-producing area. The individual parcel design at Skyway Industrial Park has been shown in Figure 2 to demonstrate the needed flexibility in industrial tract requirements. The western portion of the airport conveyance is being used for recreation purposes and would, under current surplus property authorizations, have been transferred for park purposes. The educational properties also serve as a buffer between the industrial-aviation properties and the remaining base housing.

In those instances where the base will be used for industrial or commercial job-producing purposes, it is important that the community *acquire all of the base property or at least a portion under negotiated sale provisions without deed restrictions*. Even in those instances where major portions of the base could otherwise qualify for aviation industrial revenue public-benefit conveyances, it is important that the community not automatically acquire all of the facilities without cost.²⁰ The reason is rather obvious. Most banks and other long-term credit institutions will not finance construction or improvements on a leasehold with any type of deed restrictions. As a result, many industrial and commercial firms will insist on having clear fee-simple title to the facilities and land on which they plan to make extensive investments. Other firms, conversely, may be readily attracted to lease facilities. The availability of *both* fee-simple and revenue-producing lease land or facilities provides an element of *flexibility* for the community in accommodating future industrial prospects. An important influencing factor in determining the amount of property to be purchased is the inventory of existing prime industrial property currently in the community.



Converse Rubber Company shoe assembly plant in former Snark Hangar, Presque Isle, Maine.

Under some circumstances, the Federal Aviation Administration may permit the subsequent release of revenue-producing land in those instances when this revenue-producing area is larger than actually needed to support airport operations. However, such releases require time for processing; the burden of justification is on the community; and, the purchase price relates to the then current redeveloped value of the property. The community also loses the needed flexibility in being able to negotiate promptly with new clients who desire fee-simple facilities.

As a general rule, communities would be well advised to have the *flexibility* of fee-simple land available wherever

possible for industrial/commercial development.

Following the formulation of the overall land use plan, the community adjustment committee should initiate detailed design of the base facilities for new civilian uses. While the community adjustment committee may well wish to retain specialized consultant²¹ or professional architectural-engineering advice (or to hire a local staff planner), there are several basic principles which have been learned over the years in converting former Defense bases that may also prove helpful. It is important to note that many of the base design elements and criteria discussed below may also influence the community's overall land use plan itself.

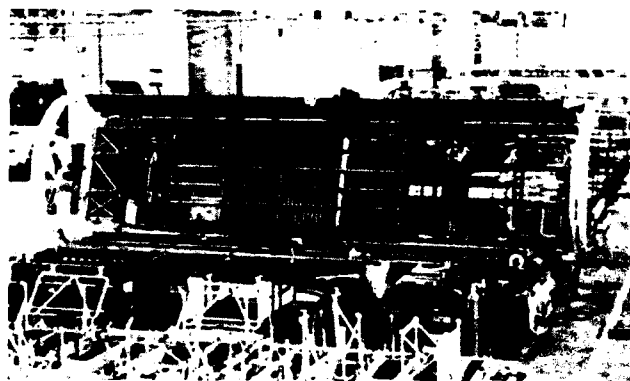
V. Overall Design Elements

In approaching the actual redesign of the base facilities, this chapter is intended to discuss the First Planning Steps, General Design Elements, Re-engineering of the Base, and Initial Financial Aspects. The chapter also includes a case discussion on the overall design of the Burlington (New Jersey) Army Ammunition Plant to highlight these general design principles. In this chapter and the following chapter, those development HINTS which have proven helpful to previous Defense impacted communities will also be stressed.

A. First Planning Steps

The first step in planning the reuse of the former Defense facility actually begins *off of the base* with attention to the major highway and rail access. Attention should then be given to the actual or true orientation of the facility. Finally, the new civilian design must be adapted to the existing base utility systems. *It is one task to develop a master plan for a new industrial park on raw acreage but it is vastly more complex and difficult to adapt an industrial park design to a former military base.*

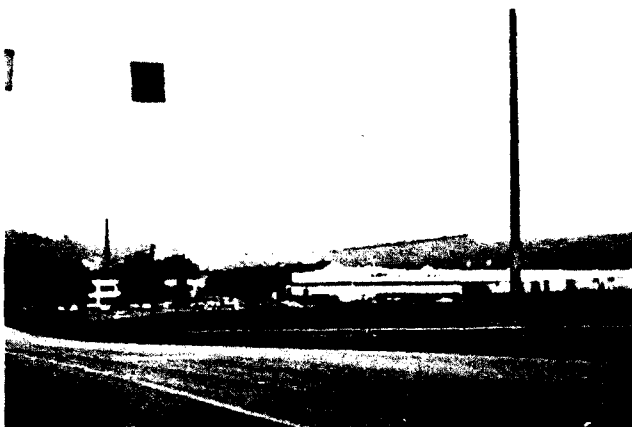
Base reuse planning should begin from the nearest interstate or U.S. highway in terms of identifying major highway problems that must be corrected by the state or community outside the base itself. Careful attention must be given to the question of reaching the base by way of the existing road system. Major bottlenecks, inadequate road structures or existing heavy vehicle traffic may cause unnecessary delays in reaching the base. These delays can be translated quickly into additional over-the-road time, unneeded service frustra-



Greyhound Bus production facility in revenue-producing hangar at the former Walker AFB in Roswell, New Mexico.

²⁰ John S. Stiff, the City Manager of Amarillo, Texas, in commenting on the draft of this report, offered: "Be sure not to acquire more than you need and can finance the maintenance thereof." Letter of October 24, 1977.

²¹ It is important to note that many otherwise highly qualified engineering firms may never have had the opportunity to design new industrial parks which can differ substantially in design from commercial/residential developments.



Improved highway access to AMI Plant at the former York (Pennsylvania) Naval Ordnance Plant.

tion and ultimately into dollars. The main purpose in investigating the highway approaches and access is to eliminate any unnecessary competitive disadvantage for the site.

Sometimes the needed improvements may be as simple as adequate "signing" of the appropriate interchanges or grade crossings to facilitate the movement of heavy vehicles through the city and to the base. Sometimes the major interstate highway may lack continuous feeder interchanges (or jughandles) which can improve access to the base during rush hours. Finally, and most importantly, the entire base itself must be "opened" to serve a new civilian role — often with improved entrances. This feature of improved road access is of such importance that a following section (Chapter VI.B.) will be devoted to this key issue.

In opening the base to new civilian uses, careful attention should be given to the new available industrial land as well as to the existing former military facilities. The long-term effective orientation for development of the property may be in an entirely different direction than the basic military lay-out for the base. Care should be taken to avoid any premature commitment of existing individual buildings, roads, or rail lines which may impair the overall development of the former base. While it may be difficult to start the planning process conceptually with a completely open site, do not assume that every existing building or facility must remain as a given element in the final design. Many potential developers may well have a fixation on an existing rail line, building, or roadway which might more effectively be removed to permit optimum development of the site. A case example involving a new orientation for the property under civilian use will be shown later in Figure 3 for the former Burlington Army Ammunition Plant.

The base reuse planner must adopt or *superimpose* his block, parcel and new building design on the existing underground utility systems — or the existing water, gas, sewerage, and electrical lines. Care must be taken to ensure that new or future building foundations or excavations do not sever one of these major underground utilities or cause the community to locate the utility line around new buildings. Unfortunately, the utility lines on some Defense facilities have often followed the shortest distance between two points thereby cutting across parcels. For this reason, the layout of the new civilian facility must initially be superimposed upon a map of the existing utility systems.

In reviewing drafts on this report, several community leaders stressed the importance of repeated on-scene inspections of the facility prior to initiating the redesign process. The following HINT was also emphasized repeatedly:

HINT: Secure copies of the "as built" plans for the base before the military departs. The maps of the

utility lines will be of special importance in the parcel design process. Review the maps carefully to ensure that the community will be satisfied with the condition of previously used equipment or byproduct "disposal areas," if any. As will be discussed below, do not assume the full accuracy for the "as built" plans but they are the best starting point for the overall redesign of the former base.

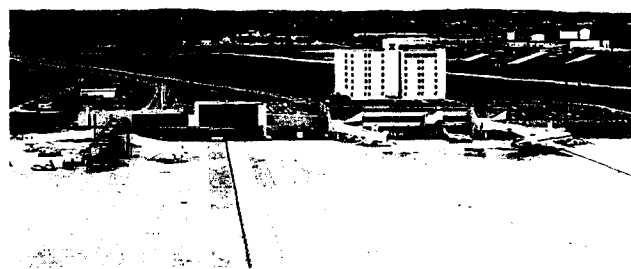
B. General Design Elements

From an overall design perspective, it is important that the base assets limitations be thoroughly reviewed prior to the actual facility, street, and block design. Several overall use suggestions are outlined as follows:

- Linked or related industries (based on the community industrial profile) should be clustered in specific tracts or sections of the former base.
- Where future commercial services will be required, a related 25- to 30-acre (or larger) centrally-located commercial center, including possible motel facilities, should be reserved for future development.²²
- Plan parking areas and recreational areas along existing major utility rights-of-way or easements.
- Care should be given to conserve major frontage as the industrial park or base develops. As the base becomes developed, the remaining frontage will become far more valuable.

The following additional HINTS may also be useful in the general redesign of the former base.

HINT: Ensure that future needed road, rail and utility easements are included in the property deed restrictions on all sale and even public benefit conveyances through the Federal agencies. These easements will prevent the future construction of buildings or other facilities which may restrict the future development of the base.²³ Easements can be released, if needed, in the future but it is very difficult



Hilton Hotel serving the Domestic and International Terminals at the former Dow AFB in Bangor, Maine.

²² Note, for instance, the location of the Ramada Inn complex at the Raritan Center (Figure 4) which also serves visitors to Continental Can, American Hospital Supply, Cabot Corporation, Schwinn Company, and the R. H. Macy distribution facility.

²³ As a case example, Roswell, New Mexico, declined to place an easement through a corner of the Eastern New Mexico University property in 1968 to accommodate future industrial expansion. The construction of a new college building subsequently required an expensive new railhead around the base in 1974 in order to accommodate a new Greyhound Lines bus production facility. Office of Economic Adjustment, "Industrial District Plan for the Roswell Air Industrial Center, Roswell, New Mexico," (Washington: January 1968); John E. Lynch, *Local Economic Development After Military Base Closures* (New York: Praeger Publishers, 1970) pp. 211-29.

to recover or secure an essential easement once actual development is underway.



Salina Airport showing Kansas Technical Institute facilities to the right of the flight line.

HINT: Where educational or other public uses may appear potentially optimistic, be certain that alternative future land acquisition approaches are available either by acquiring the property in the first instance through purchase or by including a qualifying commentary in one of the federal agency conveyance applications. For instance, the Salina Airport Authority included an identification in its original FAA application for Schilling AFB that additional land areas were required in the event that the Kansas Technical Institute were to subsequently release any of its facilities as unneeded. This farsighted contingency actually occurred in 1976.

HINT: Develop a phased, scheduled plan for the removal or redevelopment of specific substandard buildings and the orderly installation of specific improvements (supported by a performance bond where appropriate) as a condition for acquisition or public benefit conveyance. For instance, the Texas State Technical Institute retained several unsightly former barracks buildings at Amarillo, Texas for far too many years when the buildings were only marginally usable. As another example, the Donaldson Center in Greenville, South Carolina retained numerous old World War II temporary structures for nearly 14 years beyond the base acquisition in direct contrast with the more modern plant operations by Norwich Pharmaceutical, Union Carbide, LTV, and Hughes Aircraft. Several community leaders commented on the need to carefully evaluate the future uses for each existing structure:²⁴

"Many military bases were built for specific uses, e.g. parachute rigging, transmitter and receiver sites, etc. and do not lend themselves to other than storage. It is worthwhile to consider demolition of these structures to create more usable land for larger industrial type uses."

C. Base-Re-engineering

Military base facilities have been designed without internal property lines, easements, or internal deed restrictions. In replanning a former military base, therefore, the community must often survey the base completely and in effect "plat" or subdivide the base in reverse — all in accord with local law and the requirements of the local register of deeds, local zoning ordinances, and local subdivision regulations.

The work of locating old section corners and tying the entire base together, establishing street and utility easements, rights-of-way, setbacks, and property lot lines can sometimes be costly. It has occasionally taken highly qualified civil engineering firms upwards of 2-3 months to completely survey or re-engineer a former base to its new civilian uses. There may even be a duplication between street names on the base and existing streets within the community.

One expert who designed over sixty Air Force bases nationwide and who was then called upon to redesign the former Schilling AFB also observed:²⁵

"On-base utility lines were almost always installed from Point A to Point B. Many lines run *under* structures or buildings built later. If private or municipal utility departments are taking over the utility systems, they must have easements — not only for the underground but the overhead lines. These criss-crossing utility lines must be located and recorded to permit permanent access rights or to have the lines relocated."

In summary, it must be borne in mind that the impacted community is acquiring *developed* acreage or facilities which will often require engineering or subdividing *in reverse*.

D. Initial Financial Aspects

One of the eight key base reuse planning objectives identified in Chapter III was the maintenance of a positive cash flow with minimum development costs, especially during the early civilian reuse development phase. While the procedures for purchasing the available industrial/commercial facilities from GSA and for securing public benefit conveyances from the federal agencies will be discussed in a companion manual, there are several planning techniques which can be used to conserve community resources.

It is important to realize that operating and maintenance costs for former Defense facilities can vary from less than 10 percent to upwards of 40 percent of the former military operating costs. However, *the cost of operating a former Defense facility will invariably be significantly lower under civilian standards for the following reasons:*

- Due to readiness requirements, military standards for maintenance are generally far higher than civilian standards.
- Individual civilian tenants generally perform their own routine maintenance and their own conversion improvements to the facilities.
- Routine maintenance on the non-leased areas can be kept to a minimum under civilian reuse.
- Specialized non-routine maintenance can be provided by private contractors where military activities typically include personnel staffing levels to perform such maintenance services.²⁶

²⁴ Robert L. Mandeville, Director of Airports, City of Reno, Nevada. Letter of November 17, 1977.

²⁵ Robert A. McAuliffe, Wilson & Company-Engineers & Architects, Salina, Kansas, letter of October 19, 1977. The author is deeply indebted to Bob McAuliffe for his suggestions and his description as to the requirements for re-engineering former Defense facilities. Mr. McAuliffe was also the author of: *The Salina Story: Swords into Plowshares* (Washington 1966).

²⁶ The familiar adage for a civilian base is that least expensive overhead will be someone else's overhead.

In order to highlight these operating cost differentials, the maintenance costs for eight typical bases have been summarized in Table 1 below:

Table 1
Comparative Military and Civilian Operating-Maintenance Costs For Former Defense Bases
(in \$ 1976)

Base/Location	Operating and Maintenance Costs	
	Military	Civilian
Amarillo AFB (Amarillo, Texas)	\$9,744,900	\$2,360,000
Lincoln AFB (Lincoln, Nebraska)	6,130,800	1,000,000
Perrin AFB (Grayson County, Texas)	5,298,100	363,000
Rossford Army Depot (Toledo, Ohio)	4,636,900*	300,000
Schenectady Army Depot (Voorhesville, New York)	6,657,500	1,700,000
Schilling AFB (Salina, Kansas)	8,586,800	3,720,000
Westover AFB (Chicopee, Massachusetts)	8,447,400*	1,990,000

* Where joint use occurred during the final year of operations, prior military costs have been pro-rated for comparability purposes.

Source: Booz, Allen & Hamilton, Inc. "Boon or Burden? The Cost of Operating Former Bases," 1978.

The following techniques have been used by previous Defense impacted communities to reduce the net overall burden in assuming the new base facilities:

- Utilize the military phase-down period and the GSA property disposal period to secure *interim use tenants* whose operations are consistent with the long-term base reuse plan. Once the community secures title to the facilities, these tenants can then acquire the facilities outright from the community or provide lease payments to the community management entity. In any event, the cost of maintenance for the facilities is imposed on the tenant/owner.
- Postpone all but essential capital improvements during the early years of operation.
- Identify the essential capital improvements eligible for federal grants or finance the immediate capital improvements with revenue bonds (wherever possible) using the rental revenues from the civilian uses for debt service on the bonds.
- Salvage unneeded obsolescent structures (involving high insurance, maintenance and fire safety costs) with the net proceeds²⁷ used to finance capital improvements.



Redeveloped former barracks at Perrin AFB in Sherman-Denison, Texas.

The following special HINTS may be especially useful in identifying and financing the costs for converting and upgrading former Defense facilities:

HINT: The report on the Backlog of Essential Maintenance and Repair projects (often referred to as the BEMAR report) will disclose the major facility repair, drainage, and renovation projects required for military operation of the base if budget resources were not a constraint. While the BEMAR report may include several projects which would not involve major problems under civilian operation of the base, the base report may also disclose the early essential improvements needed for the base facilities.

HINT: Leases should be arranged on a full net lease basis with the tenants assuming all costs associated with the maintenance of the buildings and property. A renovation plan should be required together with full compliance with the base master plan covenants and restrictions.²⁸ Many of the new community base operating authorities have offered attractive rental terms for the initial period of the lease to offset a portion of the tenants' early investment.

HINT: In those few base reuse situations where the obsolescent base facilities will be largely salvaged prior to the redevelopment of the entire base complex (such as Fort Holabird in Baltimore, Maryland or the former Burlington Army Ammunition Plant at Burlington, New Jersey),²⁹ a few of the more usable plant facilities should be retained temporarily both to provide incubator space for new prospects and to ensure an adequate rental cash flow for the base during the early redevelopment period. These older structures can later be salvaged after the base has been sequentially redeveloped.

HINT: Many military bases are served by one or more central heating or steam plants which may be inefficient and needlessly expensive during the early period of civilian operations with multiple individual tenants. Early attention should be given to the possible initial abandonment of the central base heating plants and the installation of separate heating units in each of the base buildings. The efficiency of the central heating system should be investigated, however, to determine whether it will be cost effective to return the "mothballed" central system to operation once sufficient tenants have been attracted to the base.³⁰

²⁷ In some areas and for specific types of structures, salvage can be expensive even with the donation of the materials to the salvage company.

²⁸ See the standard lease and purchase agreement used by the Westover Metropolitan Development Corporation which is reprinted at Appendix E.

²⁹ See Figure 3, Buildings 39, 49, and 52.

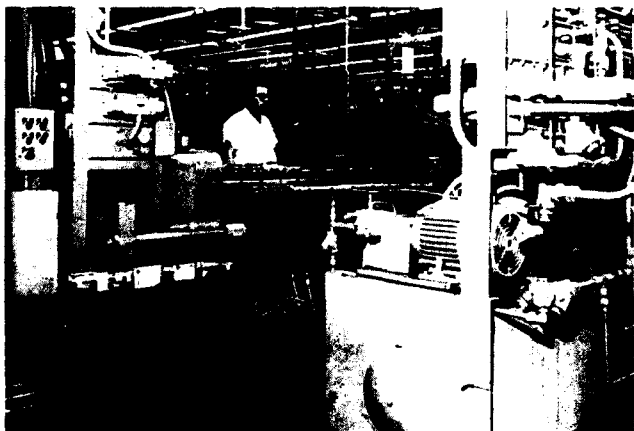
³⁰ A strong future trend in industrial park design is now toward integrated centrally-provided utility services to industrial park clients. While individual plant heating facilities may be required during the early reuse phase (when there may be few operations on-base), it is important that the central heating facilities not be removed until a separate cost analysis can be subsequently performed for renewed operation of the central heating plant once the base is largely occupied. The use of the central base heating plant is no longer a clearcut issue.

HINT: As a related element, early in the planning phase, attention should be focused on the costs of conversion of the single meters — water, electricity and gas such as generally prevails under federal use — to separate meters at each facility when these buildings are leased to separate tenants.³¹

HINT: Where additional new roads, railroad tracks, or other public improvements must be made, consider establishing a *benefit district* to distribute the "up-front" capital costs to future users. Approximately one-half of the states also permit *tax-increment* financing where the additional future tax earnings from a development can be bonded to finance the basic capital improvements.

With the completion of the community base reuse plan, the Office of Economic Adjustment is then able to identify (and retain) with the Military Department that essential operating, maintenance and support equipment needed by the community as related personal property. The retention of this equipment, under DOD Directive 5410.12, can represent a significant cost savings to the community. This retained equipment involves those items which are not otherwise in a "need-to-buy" (procurement) category or "mission essential" to the Military Departments (or were previously purchased with non-appropriated funds). The retained equipment must be needed to implement and support the community reuse plan. This equipment is directly associated with the particular land use or property conveyance authority and is transferred directly to the community with the real property. Where the real property can be transferred without cost for a public benefit purpose, the related equipment can likewise be transferred without cost consideration. One industrial airpark manager has commented:³²

"Specifically in the case of the airports but probably applicable to most cases, is the need for specialized snow and debris removal equipment, firefighting equipment, railroad maintenance equipment and other items unique to operations contemplated at the facility. The impacted community should determine its requirements and try to retain as much of the equipment as the Department of Defense is willing to make available. Without the conveyance of the equipment with the facility, the community may find itself confronted with an enormous capital outlay just to maintain the facility from the day of possession until it begins to generate income some years later."



Production equipment retained in place for Teledyne-Continental operations at the former Brookley AFB in Mobile, Alabama.

E. Overall Design — A Case Example

The need for determining the true orientation of the property and the need for opening the property with new unobstructed entrances can be seen in the case example of the Burlington Army Ammunition Plant as shown in Figure 3A and 3B. In this instance, most of the outmoded Burlington Plant structures are being salvaged and the site is being opened for new industrial parcels. Unfortunately, the engineer for the initial plant design was committed to the retention of an existing dual rail spur which traversed and divided the site on a north-south axis. The actual optimum orientation of the Burlington plant site, however, is not on a north-south axis, but on an axis parallel to the existing Reed Street and perpendicular to the main West Broad Street (Figure 3B). The original design would have had the following design weaknesses:

- The rear of the 12 two-acre industrial parcels with the rail loading docks would have faced a residential area on Reed Street.
- No allowance could be made for turning trucks about before leaving the site.
- Despite the elevation of the main Camden and Amboy rail line, the use of the existing spur would still interrupt street access to the entire industrial park site.³³
- Separate street access to the rear of the site (near the Delaware River) would not be provided.
- Two large triangular areas (labeled "A" and "B") would remain largely unused, and the initial plan would not provide for a range of parcel sizes to serve differing prospect needs.

The rail spur in Figure 3A is a relatively minor cost element in relation to the total cost (\$5.8 million) to redevelop the Burlington Plant site. It is, however, a very expensive element in relation to the loss of available industrial land. As shown in Figure 3B, the installation of a new rail spur would permit the opening of an additional row of industrial parcels — all with rail



Clearance of the former Burlington Ammunition Plant.

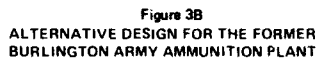
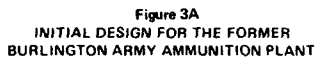
access at the rear of the property lines. The alternative design (Figure 3B) would permit access to the river portion of the property from Pearl Street in the event of rail traffic on the Camden and Amboy rail spur entering the Burlington site.

³¹ Gail R. Peck, Airport Director, Laredo International Airport. Letter of September 30, 1977.

³² Frank Fransworth, Administrative Director, Jefferson County Airport Commission, Olathe, Kansas. Letter of September 27, 1977.

³³ This critical element will be discussed further in Chapter VI.C below.

Figure 3



In summary, the critical elements in initiating the overall redesign of a former military base include (1) opening new entrances to the facility with unhampered access to the nearest interstate or primary highway, (2) determining the optimum orientation of the property for long-term development, and (3) overlaying the proposed development and parcel layout upon the existing utility system.

VI. Specific Design Criteria

In this chapter, the study will investigate the various layout and specific design criteria which have proven helpful to previous communities in the reuse of former Defense bases.³⁴ The study will investigate the new base block and parcel design, streets and service roads, rail service, grading and storm drainage, and utility services. The chapter will also outline an approach for the incremental development of industrial land as needed by the community.

A. Block and Parcel Design

It is extremely important that maximum flexibility be provided in the design plan for individual industrial parcels.³⁵

Unlike residential subdivisions and shopping centers, land sales in planned industrial parks are not only slow but unpredictable. With the realization that the available industrial land could be on the market for several years, it is difficult to predict with any degree of accuracy the future acreage needs by potential industrial clients. Hence, the importance of flexibility in parcel layout and design. In addition, there is a critical need for offering a variety of industrial parcel sizes.

As an example of the flexibility needed for the long-term merchandising and development of a former base facility, the modern industrial park design for the Raritan Center (the former Raritan Arsenal) at Edison, New Jersey is shown in Figure 4. This Figure shows the layout of individual sites in relation to the road and rail access at the Raritan Center.³⁶ It is also important to note the extensive acreage available for future development at the Center.

In general, it is appropriate to maintain rather rigid standards with respect to block planning (due to the cost of street installation and maintenance) with the needed flexibility reflected in individual parcel design. Lot sizes and individual parcels can be structured to permit adjustments in size as actual demand proves to be different than initially anticipated. The following design criteria apply in parcel design:

- Ten-acre (plus or minus) *component* block sizes are the most common³⁷ with the capability of assembling component lots to upwards of fifty acres and more. (For instance, see the lot and parcel design for the Skyway Industrial Park in Figure 2 above).
- Lot dimensions may vary but often fall with a square ratio of two-to-one depth to width. Lots often vary between 200 and 500 feet in depth with depths between 200 and 300 feet being the most common.
- Building lines in general should be set back at least 50 feet from main collector streets and at least 40 feet from feeder roads.
- Building densities normally range from 25 to 35 percent of the total lot size but can be as low as 12 to 15 percent.



Union Carbide Plant at the Donaldson Center showing building setbacks.

The following block design HINTS are also offered:

HINT: The cost of streets and utility maintenance often varies directly with the width of the industrial lot. *Try to avoid committing large lots to new clients whose employment objectives can be satisfied with smaller parcels.* For instance, the Presque Isle Industrial Council committed two large missile hangars and extensive acreage to its first client, the Indianhead Plywood Corporation, which has never been able to fully utilize the facilities. In the meantime, the Industrial Council must bear the additional maintenance cost and (more importantly) has foregone other industrial customers for one of the hangars.

HINT: Future needed flexibility for the expansion of individual firms while avoiding the problem of industrial "land banking" above can be achieved by *allowing firms to acquire deeded lands at a fixed ratio to option lands*, say 2:1 and limiting further acquisitions to options. If a firm does not have an expansion requirement when the option expires, then the property can be made available to other users.³⁸

HINT: *Large lots along aircraft flight lines and taxiways with depths in excess of 500 to 700 feet can be retained with the flexibility of later adding a cul-de-sac and dividing the large lot into two or more medium depth lots.*

³⁴ An extremely helpful supplemental guide for industrial park layout design can be found in: Urban Land Institute, *Industrial Development Handbook* (Washington 1975).

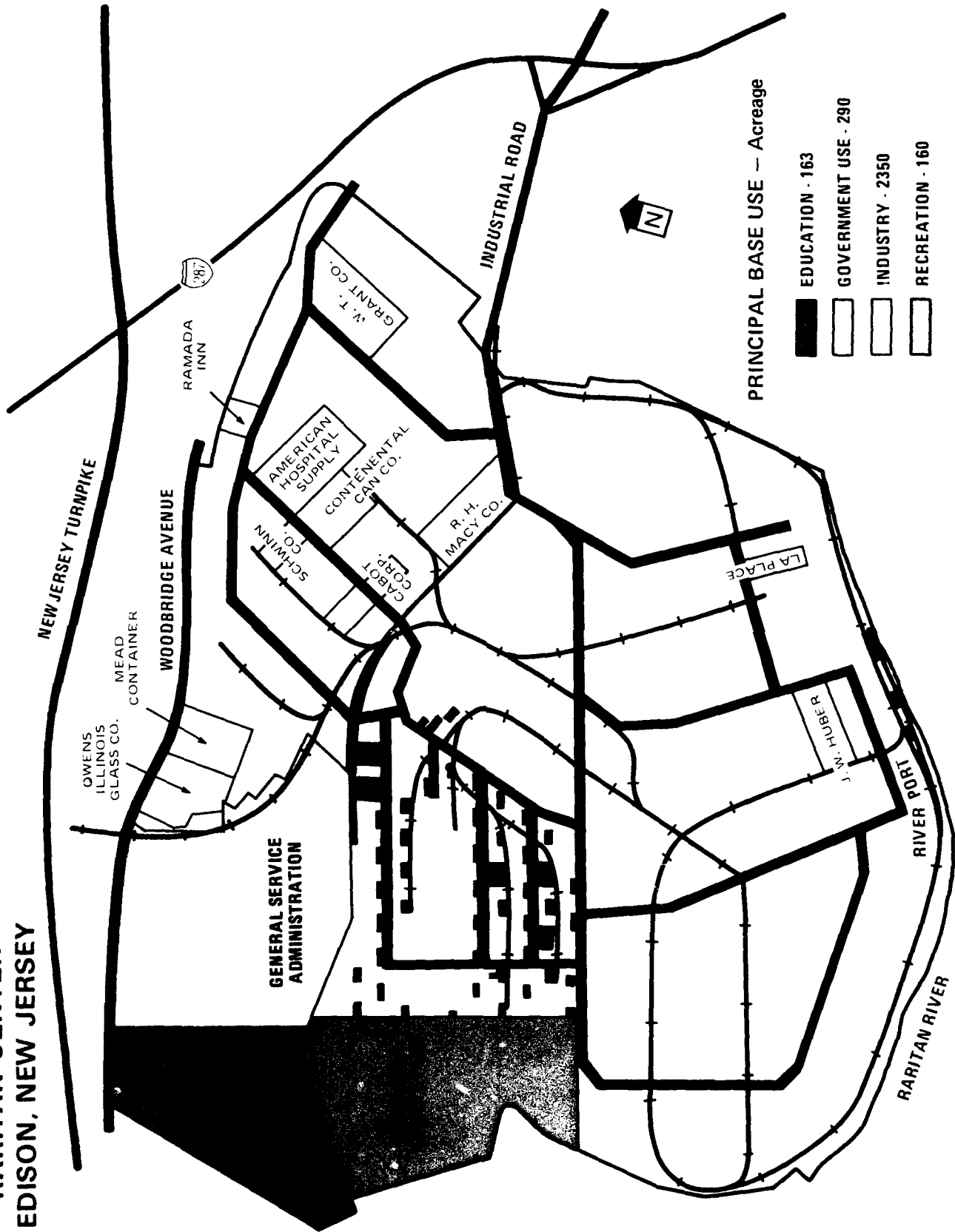
³⁵ "If there is a single cardinal rule for industrial district development, it is to provide as much flexibility as possible in the layout plan." Robert E. Boley, *Industrial Districts: Principles in Practice* (Washington: Urban Land Institute, 1962), p. 14.

³⁶ The rail access at the Raritan Center will be commented upon in Section C below.

³⁷ Block sizes in the range of 6-7 acres have proven effective in the reuse of former military bases which can be parcelled as six individual one-acre lots (approximately 150 x 300) or two large lots within each block.

³⁸ Leland F. Smith, Executive Director, Development Authority for Tucson's Economy, Letter of October 6, 1977.

FIGURE 4
RARITAN CENTER
EDISON, NEW JERSEY



B. Streets and Service Roads

Civilian uses for former military bases often require a far different highway and road layout for the movement of goods and employees than for the previous Defense mission. Base security, for instance, is no longer of paramount importance. Former Defense bases often have a surplus of internal roadways — many of which must be closed or abandoned in order to provide reasonable industrial parcels and to save maintenance costs. Conversely, since security requirements may have limited access to the former DOD facility, it is often necessary to open new entrances and service gates to the new civilian base. The impacted community would be well advised to reconsider the existing base roadway network as one of its first redesign priorities.

As an example of the new base entrance requirements, the road network and industrial parcels for the Mobile Aerospace Industrial Center (formerly Brookley AFB) in Alabama, are shown in Figure 5. Particular attention should be given to the then (1968) "proposed" opening of Service Gates Nos. 3 and 4 in addition to the previous Main Entrance and the existing Washington Avenue Gate. The addition of Service Gate No. 3 was also required in order to avoid isolating the eastern portion of the Brookley complex when trains would be serving the main industrial buildings and 3rd and 4th Streets and would otherwise be blocking the Washington Avenue collector route. This crossing is labeled as the "Bottleneck" on Figure 5.

In designing future base road networks, it is desirable to provide for the necessary flow of internal traffic while discouraging outside through-traffic. For instance, "gridiron" blocks have the tendency to attract outside fast-moving through-traffic which may be avoiding traffic congestion on other main routes.

Some of the main roads to the industrial areas may require upgrading to handle axle loads of up to 18,000 pounds (federal highway standards). Pavement thickness and weight bearing design requirements will be influenced by the existing soil conditions, climate, the allowable axle loadings on the base, the planned number of truck movements, and the type of pavement to be constructed. The nature of road upgrading requirements cannot be answered in advance and the affected community may well have to call upon outside civil engineering advice.

A conscious effort should also be made to avoid acute angles at new intersections. Wherever possible, on-street parking should be eliminated in order to reduce street construction and maintenance costs and to avoid traffic congestion. The following design features should be incorporated in new base road or street design:

- Major collector streets should have a right-of-way width of approximately 100 feet with pavements of either (a) 47 to 50 feet wide for single pavement highways, or (b) a divided roadway with roadways of 30 to 35 feet (32 foot standard) each separated by a 10 foot median.
- Where parking is permitted along the street (one side), the streets should be 40 to 45 feet wide; where parking is permitted on both sides of the street, widths of 60 to 65 feet are common. Hence, the significant cost savings from off-street parking.
- Roads should be designed to a standard of 800 to 1,200 peak vehicle trips per hour for each lane of pavement.
- Roads without curbs should have minimum shoulders of 10 feet on the left and 12 feet on the right. With curbs, a minimum shoulder of 5 feet should be allowed with an additional 5 feet wherever utility easements are required. Fill or cut areas should be graded to less than a 3:1 slope.

- Cul-de-sacs should have a pavement area of at least 100 feet in diameter in order to permit 45-foot trailers to make a complete turn. A cul-de-sac turning circle also provides an excellent location for water standpipes.
- Street corners should be rounded to a radius of 30 to 35 feet with major intersections rounded to a radius of 50 feet.
- *Truck deliveries should be controlled through the location of loading docks at the side and rear of buildings only.*
- *Adequate on-site parking should be required for employees (at least one space for each 1 to 1½ plant workers), executives, and visitors.*

The following additional HINTS may be helpful in the redesign of base roads:

HINT: When streets must be installed before utilities and before final plant utility requirements are known, install large pipe casings for water mains and other utilities at the intersections prior to paving. These casings should be marked and staked for subsequent installation of utilities without impairing the roadways.

HINT: Most former Defense bases have a surplus of unneeded roadways or hardstands. Before eliminating or covering these unneeded paved areas, however, give priority consideration to their use for off-street employee or customer parking. For instance, note the extensive "auto park" areas which were retained at the Mobile Aerospace Industrial Center as shown in Figure 5.



Use of hardstand area at the former Schilling AFB, Salina, Kansas.

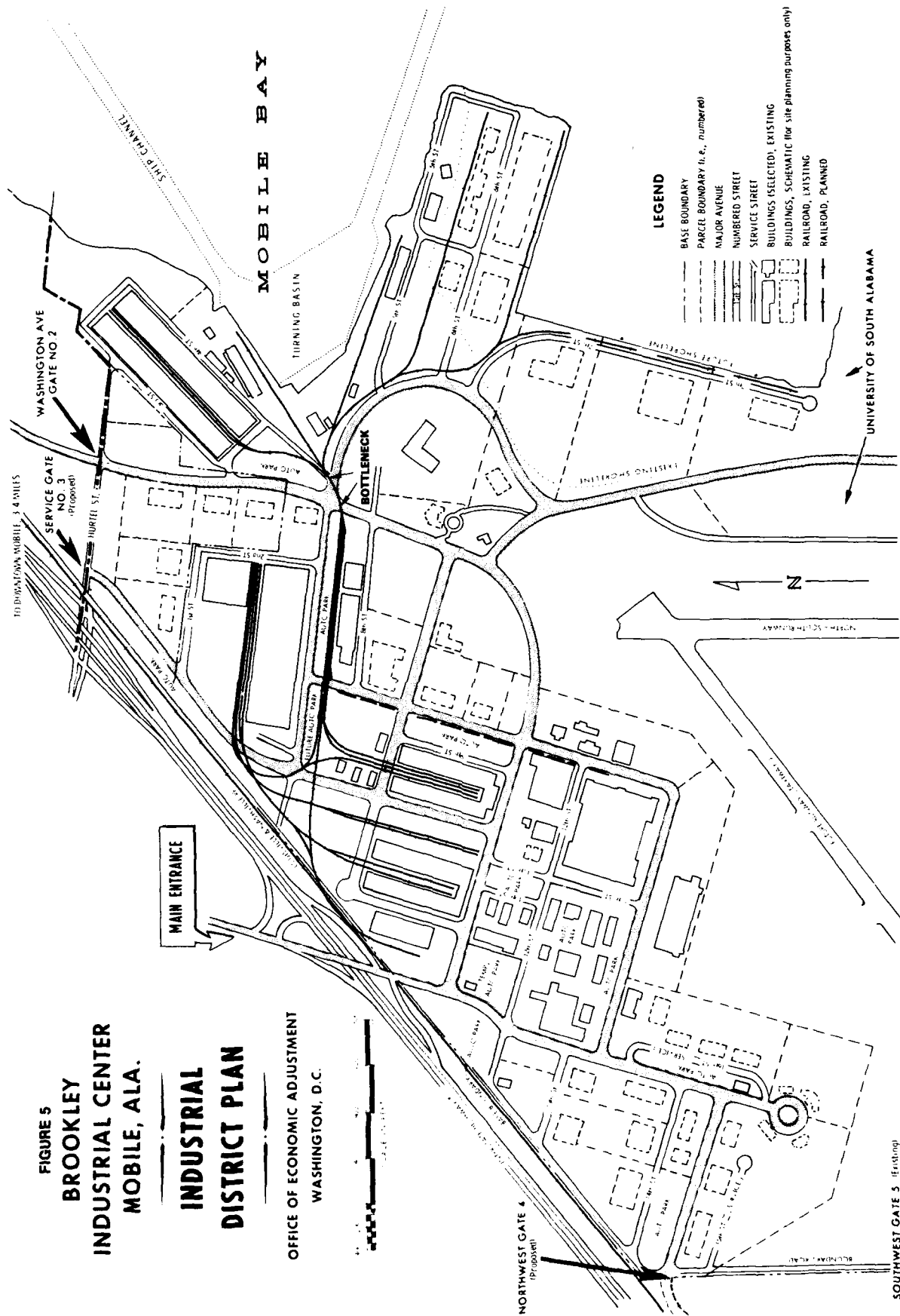
C. Rail Service

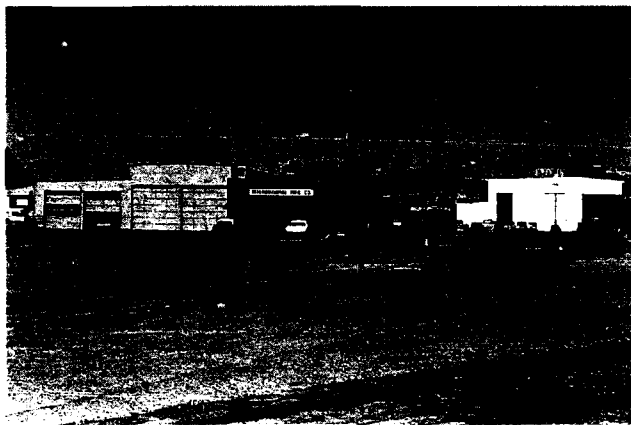
The rail service to former Defense bases was established to serve a military mission often with multiple parallel tracks serving DOD warehouses and plants. New industrial park designs generally involve single rather than multiple spur tracks. As a means of both conserving maintenance costs and eliminating numerous otherwise odd-shaped industrial parcels, careful attention should be given to the consolidation of rail trackage (especially light rail trackage which is common to many older DOD industrial facilities), the eliminating of rail crossings, and the removal of multi-parallel spur tracks.

One of the key principles of industrial park design is to ensure that the main drill track enters the industrial area from the side or rear of the industrial park area (thereby running parallel with the main collector street). The spur tracks can then be laid out perpendicular to the collector street or parallel

FIGURE 5
BROOKLEY
INDUSTRIAL CENTER
MOBILE, ALA.
INDUSTRIAL
DISTRICT PLAN

OFFICE OF ECONOMIC ADJUSTMENT
 WASHINGTON, D.C.





Multiple Tracks at the former Benicia (California) Arsenal.

to the feeder roads in order to serve the rear of the industrial parcels. This approach has the advantage of *minimizing at-street-level crossings on the main collector streets* which would otherwise have the tendency to tie up road traffic on the base or in the industrial park.

A case example of where the railroad track layout was *not* redesigned is shown in Figure 4 for the former Raritan Arsenal at Edison, New Jersey. In this instance, there are four major railroad crossings on Industrial Road whereas the southside of the new Raritan Center could have been served more efficiently by one crossing of Industrial Road with the spur tracks leading from a main drill track along the Raritan River. In summary, one of the key design objectives should be the elimination or minimization of at-grade rail crossings by major roads within the former Defense base.

Since the energy crisis of 1973-74, the trend in industrial park design nationwide has been to ensure adequate rail service—even if the client or tenant plants may currently be shipping entirely by truck. This added design insurance ("belt and suspenders") guards against future possible comparative truck-rail rate increases. Since the cost of switching cars within an industrial park is high (at least \$1.25 per minute for fuel and labor in 1977 prices) and the cost of new rail installation is also expensive (\$40-50 per linear foot), it is not necessary to consider that every plant site must be served by rail in today's industrial site market. The availability of adequate container or piggyback loading on the site or nearby can often solve the need for rail service—except of course for bulk shipments.

The cost of the lead or drill track is normally paid for by the developer with many railroads providing a refund based on usage for the portion of the track back to the "clearance point." The cost of rail facilities within any industrial park can also be very expensive: grade crossings over roads can amount to \$40 per foot for wood crossings to \$250 per foot for rubber crossings; signal lights can vary from \$20,000 to \$70,000; gate crossings can vary from \$45,000 to \$125,000; and automatic switches can amount to \$3,000 to \$15,000 each.

There is one cardinal rule on rail service within the industrial park: *rail cars cannot be allowed to roll within the site*. The final rail design criteria must be verified with the Division Engineer for the servicing railroad. To provide a better understanding as to the rail requirements and the special terminology, the Santa Fe Railway specifications for industrial track construction have been reprinted at Appendix F.³⁹ The key rail design criteria are summarized as follows:

- Rail right-of-way should have a minimum width of 34 feet. Rail service requires about 17 feet from the center of the drill track to the rear of the property line. A spur track is typically 27-30 feet minimum from the drill track.
- A normal curve radius of 12 degrees should be provided

with a minimum curve radius of 350 to 400 feet.

- The maximum grade should be from 1½ to 2 percent.
- Reverse curves should be avoided and should be separated by at least 100 feet of straight track.

The following HINTS will also be useful in securing reuse of the available on-base rail facilities.

HINT: The rail facilities on many Defense bases may not have been upgraded to 90 pounds (per yard) or heavier. *Do not assume the continued use of rail lighter than 90 pounds.*

HINT: Previous base closure communities have generally sold the rail rights-of-way⁴⁰ to the railroads serving the base; often they have received agreements for certain improvements when the rail facilities have been provided without cost to the railroad. Other agreements may call for the amortization of costs through a per car credit for loadings.

D. Grading and Storm Drainage

Former Defense base facilities normally have adequate storm drainage, generally installed over many years. Nevertheless, the records of the base engineer should be consulted at the earliest opportunity.

The critical issue in providing adequate storm drainage is not the total annual rainfall but the probability of intense brief rainfalls.⁴¹ Information on the intensity of 30-minute rainfalls should be obtained from the U.S. Weather Bureau and from the base engineer. In addition to the normal attention given to roadways, care should also be taken to ensure that plant loading and parking areas are graded sufficiently above storm or retention basins to allow for adequate drainage.

Recreational areas and small lakes provide good storage facilities to hold the excess rain runoff temporarily. Thus, the



Golf course at the former Clinton-Sherman (Oklahoma) AFB.

³⁹ Reprinted through the help and courtesy of James R. Scott, Vice President, Real Estate and Industrial Development, Santa Fe Railway.

⁴⁰ John F. (Mike) Scanlon, Executive Vice President of the Salina Airport Authority, commented: "We maintain our own rail and at very little expense. Once in a while we have to work on the bedding; usually the railroad inspectors tell us when maintenance is necessary." Letter of October 17, 1977.

⁴¹ For instance, in designing the new rail line to serve the Greyhound plant at the former Walker AFB in Roswell, New Mexico, adequate attention was not given to the intensity of the infrequent rains in the region. As a result, flood or water settling areas have developed along the rail right-of-way.

storm drainage requirements should be considered very early in the base reuse planning stage in order that the park-related facilities can qualify for public benefit conveyance without cost to the community. As shown in Figure 1, the recreational area and golf course at Clinton-Sherman Air Industrial Park also provides the storm holding capacity for the surrounding industrial areas of the base.

In developing new areas of the base for industrial sites, it is important that preliminary drainage flowline channels with adequate gradients be established prior to actual excavation. The volume of earth being moved can then be minimized by filling otherwise unsuitable low areas to a level well above the stormwater retention basins. In the case of bases with impervious surface soils, it may be necessary to construct dry wells (also referred to as Max Wells) through the impervious soils to reach subsurface gravel soils. Any such dry wells should be surrounded with adequate retention basins.

It is important that an entire new industrial area be graded all at one time even though the actual development may proceed incrementally over many years. This approach not only minimizes future drainage problems, it is also significantly less expensive. For instance, the initial market strategy for the Montbello Industrial Park in Denver called for the sequential development of four 125-acre sections. Site grading was completed on the first two parcels immediately. When the two remaining sites were later developed, it was necessary to go around the already developed sections with heavy equipment and longer hauls. The additional grading cost amounted to \$250,000 or \$1,000 per acre more than if the site had been graded all at one time.⁴²

HINT: In excavating for buildings, it is often difficult to remove soils through the developed portions of the base. These excavated soils can be used for earth berms which attractively screen parking areas or maintenance areas on the base.

E. Utility Services

The demand for water at industrial parks can vary significantly depending on the process and product involved. In general, the usage may vary from 500 gallons per acre per day for warehousing to over 6,000 gallons or more per acre/day for some industrial operations. In mixed use developments, the water capacity design should provide for a daily usage of approximately 1,500 gallons per acre/day.

Water lines should be laid out in a loop with lines of eight inches or more in diameter being desirable. In any event, the minimum water pipe size should be no less than six inches. One of the most serious design weaknesses in many industrial parks in small communities throughout the nation has been inadequately-sized water services. The looped water lines also ensure continuous service in the event of a main break or fire fighting activity elsewhere on the line.

Water pressures should be maintained at 20 to 35 psi. (generally 25 psi.) at the head of all sprinkler risers.⁴³ Pressures of 60 psi. may often be required to serve multi-story buildings without the need for fire pumps. The water system should be capable of delivering 1,000 to 5,000 gallons per minute for a minimum duration of two to five hours. Fire hydrants should be located every 400 to 500 feet (450 feet is standard). Normally, water lines should generally be laid to a depth of at least three feet in moderate climates and 5-6 feet in Northern climates to prevent freezing.

Sanitary sewers should be designed to provide a flow of 2 to 2.5 feet per second and without the need for rapid falls, chutes, or cascades, and especially without the need for lift stations or

force mains wherever possible. The principle is to encourage a near-horizontal layout of the sanitary sewer system.

It is common to place water, gas, and telephone service as well as sanitary sewer in a common utility trench with the sewer lines buried deeper in the ground to prevent interference. Where electrical service is provided underground, the buried electrical cable *should be separated on the opposite side of the street* from basic utility services such as water, telephone and gas.⁴⁴ Where future water and sewer connections are unknown, it is highly desirable to place utility lines behind the curb rather than under the paved streets.

The following HINTS on utilities apply specially to former DOD base facilities:

HINT: In the case of older Defense facilities, some of the older "as-built" utility information retained by the base engineer may not be entirely correct. Operating changes may have been made under emergency conditions and may not have been recorded on the base master plans. During the early reuse planning effort for the former Boston Naval Shipyard, for instance, several electrical cables, recorded as "dead" on the shipyard master plan, were actually still carrying current; additional water lines were found which were not recorded on the master plan.

HINT: Verify the condition of existing utility lines before initiating redevelopment, especially in areas with strong alkaline soils (which have a tendency to erode older iron water pipes through electrolysis). Determine whether the base electrical service is provided through separate conduits from the telephone and other utilities. Where safety or other essential improvements must be made prior to civilian reuse, notify OEA and the General Services Administration. GSA should also be asked to advise its public appraiser of this information in order that the deficiencies can be reflected in the final sales price for the property.

HINT: The chief civilian employees of the base engineer's office can provide invaluable advice on the actual utility systems operating experience. Many former impact communities have hired and retained these key civil engineering employees (especially those approaching civil service retirement) to continue operating the utility systems.

F. Incremental Development of Industrial Land

One of the important requirements in the development of new industrial sites is the ability to expand the industrial park in an orderly manner without large front-end capital costs. An approach for accomplishing the incremental development of industrial land is shown in Figure 6. The design provides for the construction of two parallel feeder streets at a depth of about 600 feet with traffic circles of at least 100 feet diameter

⁴² Marshall Bennett, President of Bennett & Kahnweiler, quoted in *Industrial Development Handbook* (Washington: Urban Land Institute, 1975), p. 118.

⁴³ Associated Factory Mutual Fire Insurance Companies, *Handbook on Industrial Loss Prevention* (New York: McGraw-Hill, 1959), p. 33.

⁴⁴ Sanitary sewers generally precede electrical cable placements and are generally deeper in the ground (conflicts are avoided on sewer repairs). Water main, telephone, and gas main construction as well as repairs can be accomplished without conflict (greater safety) with electrical service. Finally, the electrical utility may need to construct additional cable capacity adjoining the existing cables as demand increases. See: Urban Land Institute *Industrial Development Handbook* (Washington 1975), pp. 125-26.

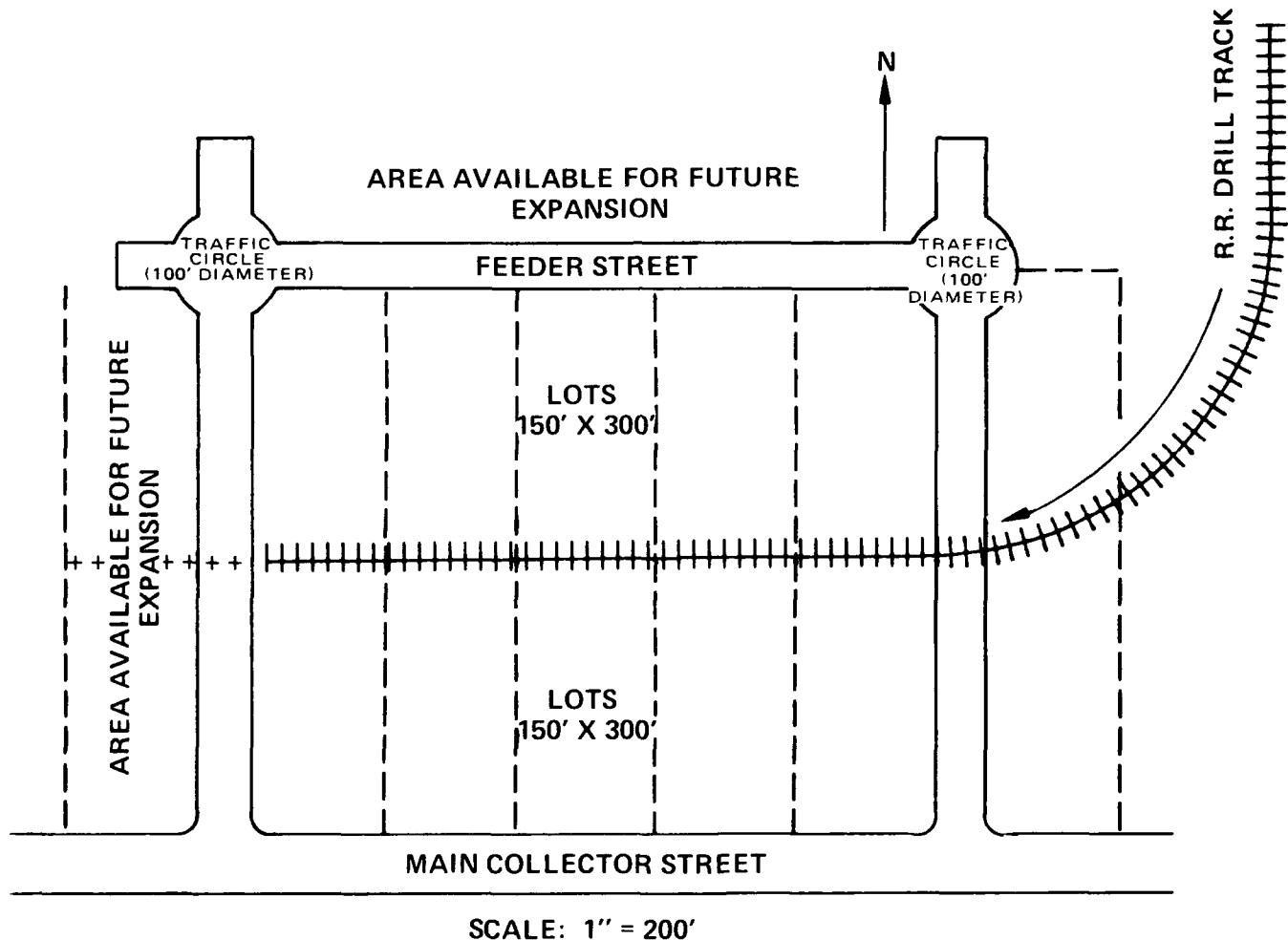
(to permit the turning of tractor-trailers) at the end of the feeder streets. The traffic circles are also joined by a feeder street along the rear (the north side in Figure 6) of the industrial block comprised of ten one-acre lots which can then be assembled in various incremental sizes to serve the needs of the prospective clients.

The feeder roads are then stubbed-off to permit subsequent incremental expansion of the industrial park (to the north and west in Figure 6). The main drill track serves the industrial site

from the side, thereby leaving one feeder street open at all times in the event of switching cars on the drill track. The drill track also serves the rear of the industrial lots. The key to this incremental industrial site expansion design is its *flexibility* with minimum front-end capital costs.

In addition to the specific design criteria, the community effecting reuse of a former military base should also be alert to the need for innovative designs which may completely change the previous character of the former base facilities.

Figure 6
DESIGN FOR INCREMENTAL INDUSTRIAL PARK DEVELOPMENT



VII. Innovative Base Design

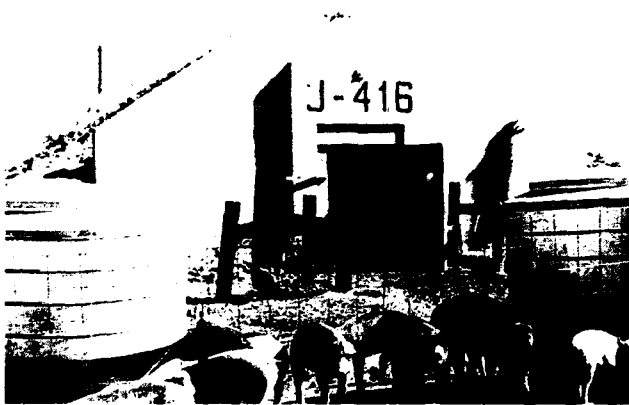
Innovation has been the keystone to the conversion of former Defense facilities to productive civilian reuse. In many instances, the former military facilities can be readily adopted to related civilian uses such as new civilian airports, new vocational-technical schools, and new manufacturing activities. The key in the conversion effort, however, is to completely transform the former military character of the facility to a new civilian tenor or mode.



Use of former Camel Barns at Benicia Arsenal by neon sign manufacturer.

In general, the innovative civilian use of the property should become a central element in the marketing strategy for the facilities. After the base use planners have developed a feasible concept, this concept itself will have to be marketed in conjunction with the specific community location and in keeping with the community industrial profile:⁴⁵

"It may be the greatest mousetrap in the world but someone still has to build a path to the door. I feel that planners too frequently assume the merits of a proposal will sell themselves. In our competitive business, this simply is not true."



Innovative use of former ammunition igloos at the former Edgemont Army Ammunition Depot.

A community manager of an air industrial park, who had recently completed the property acquisition phase, emphasized the need for realism and an effective marketing strategy in commenting on an early draft of this report as follows:⁴⁶

"I also think that additional emphasis should be placed on the extraordinary undertaking by a community to directly control part of the military base for industrial development. The United States is literally loaded with industrial parks and industrial sites, ... urgently seeking users ... that are far too few ... The basic approach here to the Glynnco Industrial Park, although completely sincere, was that our 330 acres of ground and pine trees was a 'cadillac' and the world was simply waiting to knock our door down and come in. The truth of the matter is that this is not so. Additional emphasis should be placed on sound, hard business decisions."

In some instances, the former base facilities have been completely redesigned in order (1) to satisfy the most impor-

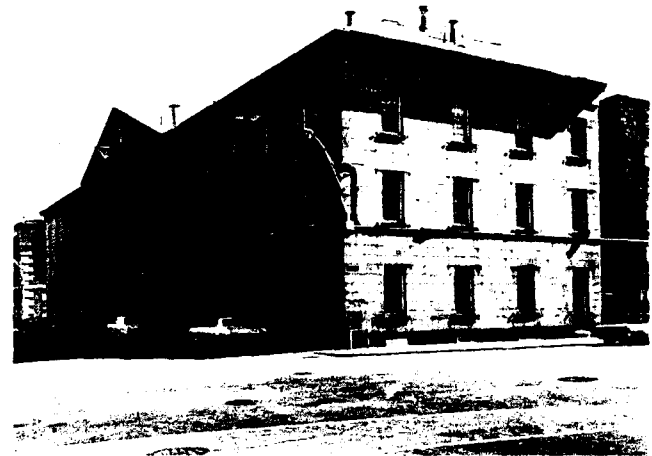
tant needs of the impacted community, or (2) to provide for a better land use where the former military-related activities were no longer feasible. Two such distinctive land use designs will be discussed below.

The closure of the nation's oldest military shipyard, the Boston Naval Shipyard in Boston's Charlestown neighborhood, as announced in April 1973, presented several insurmountable design problems for the continued industrial use of the property. The one rail access to the former shipyard would traverse the proposed National Historic Site for the USS Constitution, the oldest commissioned ship in the U.S. Navy and a large tourist attraction in historic Boston. The Tobin Bridge abutments and the I-95 Expressway completely enclosed the shipyard on the northwest with road access limited to small gates. Finally, many of the shipyard buildings were on the National Register of Historic Buildings.

Under the supervision of the Boston Redevelopment Authority (BRA), the reuse approach for the Charlestown Shipyard was reoriented from a closely confined industrial facility into a renewed commercial/residential complex based on the historic character of the shipyard. As shown in Figure 7, the BRA approach involved an innovative combination of public benefit use areas together with a "purchase area" (from GSA) in order to attract \$100 million in private sector investments by the BRA's principal developer/client.

The key to the historic reuse approach for the Boston Shipyard was the concept of an Historic Monument Area in which a major area of the shipyard (30.9 acres) will be conveyed to the City of Boston without cost. In cooperation with the National Park Service of the Department of the Interior, BRA has formulated a plan for the renovation and retention of the historic structures. Under this historic monument approach, design preservation guidelines were formulated for the outside building facades. Within these external building guidelines, individual developers are able to renovate the structures for a wide range of commercial (small specialty shoppes) and residential uses. The rental proceeds from the buildings are then used to maintain and preserve the entire Historic Monument Area.

On the west side of the facility, adjoining the Boston National Historical Park (berthing site of the USS Constitution), a 16.4-acre public park area, including the former Dry Dock No. 2,



Boston Shipyard Headquarters and Planning Office.

⁴⁵Leland F. Smith, Executive Director, Development Authority for Tuscon's Economy, Letter of October 6, 1977

⁴⁶Gordon R. Davis, Jr., Executive Director, Glynn Development Authority, Brunswick, Georgia, Letter of October 21, 1977

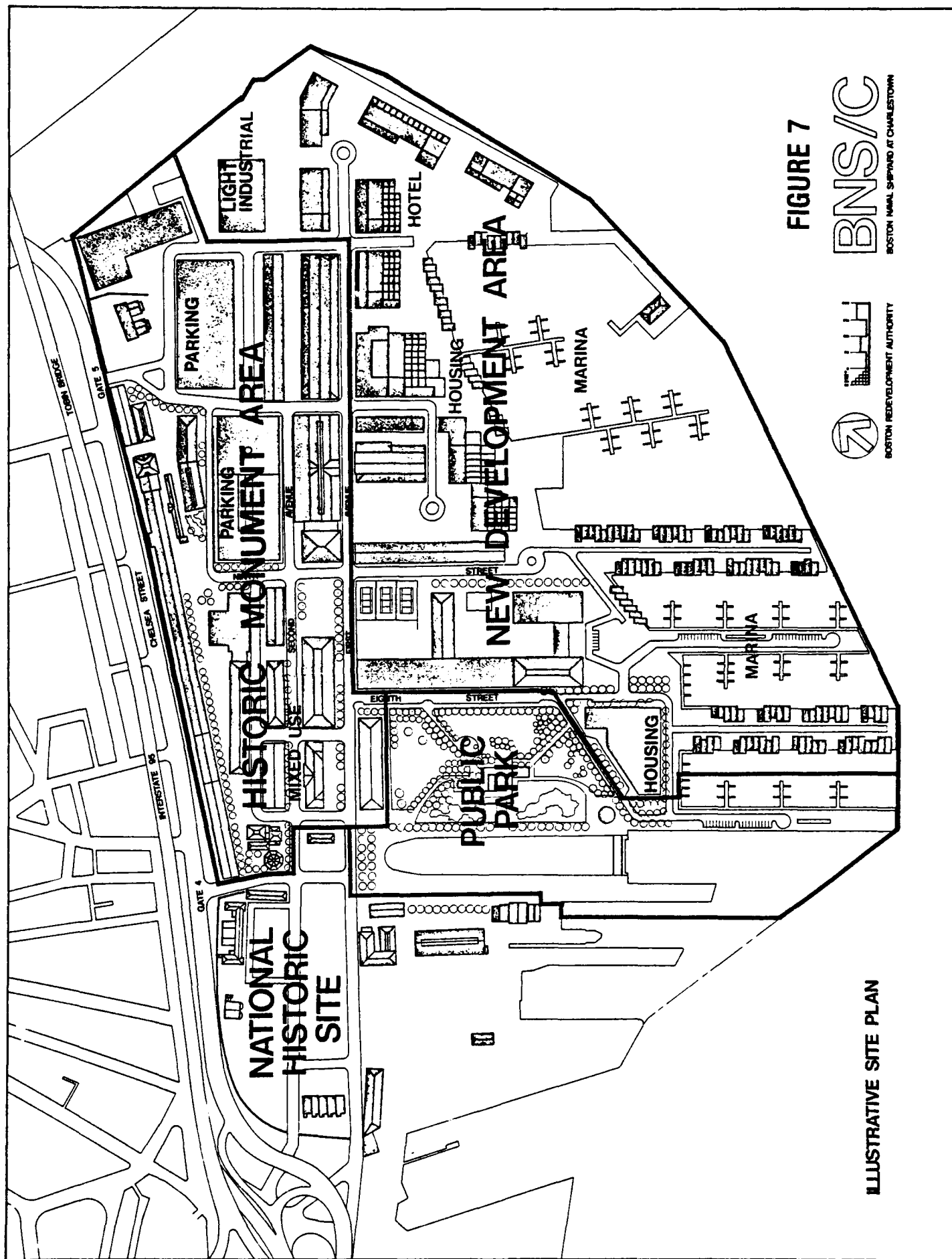


FIGURE 7

BNS/C
BOSTON MARAL SHIPYARD AT CHARLESTOWN

BHA
BOSTON REDEVELOPMENT AUTHORITY

ILLUSTRATIVE SITE PLAN

was conveyed to the city. When completed, the park will include a promenade, a small botanical garden, and a children's play area.

The New Development Area (58.4 acres) was purchased by BRA for the new commercial/residential complex. Heavy emphasis has been placed on the marina and small boat-related housing demand along the Boston harbor. Townhouses have been designed for two of the existing heavy piers while the older finger piers are being replaced by smaller marina piers. A large hotel will "anchor" the northeast portion of the waterfront.

Early attention was given to the difficult traffic flow problems which required the reopening of Gate 4 with a circular flow of traffic through the Shipyards. Gate 5 provides the major egress from the site. BRA also gave very careful attention to the reservation of visual easements along First and Second Avenues as well as toward the waterfront and across the harbor toward downtown Boston.

Federal grants from the EAC agencies (\$3.8 million from the Economic Development Administration, \$900,000 from the Department of the Interior and \$2.4 million from the Department of Housing & Urban Development) are being used by BRA to correct major utility and street problems (and to develop the park) in order to make the entire site attractive to a private developer. The development of the Boston Naval Shipyards at Charlestown thus represents a distinctive approach in which public benefit conveyance areas have been used to encourage new private sector redevelopment of outmoded Defense facilities.

The reuse of the Naval Supply Center at Torrance, California reflects another attractive redesign of a former Defense facility to serve an entirely new community use. The 44-acre site included four 20-year old large supply warehouses (200 x 600 feet each) and several small structures in a predominantly industrial area of the city. In many communities, the supply



Navy warehouse awaiting demolition for the new Torrance Park.

center with its existing rail service would have made an attractive industrial or warehouse site for new replacement jobs. In the case of Torrance, however, the City had already had an existing strong industrial tax base since the community had been one of the major industrial districts for the Los Angeles basin. The city of Torrance actually lacked adequate recreational space for its community and industrial recreational leagues. The former supply center, moreover, adjoined the city high school, elementary school, and the Southern California Regional Occupational Center. From a local perspective, the site was far more valuable as a new park and recreational complex.⁴⁷

Agreement was reached to acquire the site for park purposes with the public benefit discount adjusted to reflect the partial value of the existing facilities. As shown in Figure 8, the large warehouse Buildings 1, 2, and 3 as well as the rail trackage were removed by GSA. The remaining Building 4 was retained intact for indoor recreational purposes. A small parcel was also conveyed from the east side of the site to provide a central food service facility for the Torrance School System.

In grading the site, the city used the existing asphalt paved areas for parking. The building slabs were retained in place in several instances for court and wall games and for promenades. Demolition debris was buried on-site to provide vertical relief and to minimize costs (30% cost savings). Earth berms and mounds as well as a periphery path were created as a buffer against off-site traffic noise. As shown in Figure 8, a small $\frac{3}{4}$ -acre lake was created in the center of the park site. Extensive paths and playing fields were also installed.

Building 4 was completely renovated and now includes eight wooden floor basketball/volleyball courts, dance floors, six handball courts, a 400-seat little theatre, a shop area, a senior citizens lounge, teen meeting halls, and a small children's room. The concrete slab from Building No. 3 has been used as the base for an Open Court involving roller skating, roller hockey courts, a skateboard practice area, tennis, and outdoor basketball/volleyball. The slab also provides the base for an open air pavilion for theatrical performances, concerts, and art displays. The pavilion also includes a band rehearsal hall, green room, a music library and an open stage as well as restrooms and portable seating facilities.

The redevelopment of the new Torrance park site is being phased over a seven-year period at a total cost of approximately \$6 million (financed in part through the Department of the Interior Land and Water Conservation Fund). The Torrance park complex illustrates vividly the manner in which local needs should influence the redesign of former military facilities.

VIII. Conclusion

The reuse of former Defense facilities and land often represents an unprecedented opportunity for a community to influence its future land use and development. The community base reuse planning, therefore, should focus on the long-term development of available facilities and not merely on early reuse alone.

This study has been intended to highlight the major facility and land use principles involved in the civilian reuse of former military bases as well as many of the lessons learned over 17 years in previous community reuse efforts. The study is also intended to highlight the need for close consultation with the member federal agencies of the Economic Adjustment Committee. Nevertheless, the final responsibility for land use planning and for securing the optimum use of the former base facilities to serve local needs and objectives still rests fully with the local community leadership itself.

⁴⁷ Edward J. Ferraro, City Manager, Torrance, California. Letter of October 14, 1977.

(NAVAL SUPPLY CENTER)



FIGURE 8

THE PRESIDENT

Executive Order 12049

Defense Economic Adjustment Programs

By virtue of the authority vested in me as President by the Constitution of the United States of America, in order to provide coordinated Federal economic adjustment assistance necessitated by changes in Department of Defense activities, it is hereby ordered as follows:

SECTION 1. *Functions of the Secretary of Defense.*

(a) The Secretary shall, through the Economic Adjustment Committee, design and establish an Economic Adjustment Program to assist in the alleviation of serious economic and social impacts that result from major Defense realignments. The program shall provide for:

1. Identification of Defense-related impact problems of States, metropolitan areas, or communities that require assistance.

2. Preparation of development strategies and action plans to coordinate Federal, State and local economic adjustment efforts.

3. Strengthened and uniform economic impact analysis and analysis of community requirements for Federal economic adjustment resources, prior to base realignment action.

4. Timely and earliest possible consultation and cooperation with local, State and Federal officials concerning impact problems and coordinated interagency and intergovernmental adjustment assistance.

5. A clearinghouse service to exchange information among Federal, State and local officials involved in the resolution of community adjustment problems; e.g., previous studies, technical information, and sources of public and private financing.

6. Application of consistent policies, practices, and procedures in the administration of Federal programs that are utilized to assist Defense impact communities.

7. Encouragement of effective State and regional cooperation and concerted involvement of public interest groups and private sector organizations in Defense adjustment activities.

8. Development, with representatives of appropriate agencies, of uniform criteria for the determination of social economic impact of a particular realignment.

9. Identification and strengthening of existing agency mechanisms to better coordinate employment opportunities for displaced agency personnel.

10. Increased attractiveness to the private sector of interim usage of lands and buildings and ways of streamlining property disposal procedures to enable impacted communities to acquire base property for job-generation purposes as military activities phase down.

(b) The Secretary of Defense shall ensure that sufficient resources and personnel are allocated to carry out these functions.

SECTION 2. *Economic Adjustment Committee.*

(a) The Economic Adjustment Committee is hereby continued.

(b) The Committee shall be composed of the following, or a principal deputy, and such others as the President may designate:

(1) The Secretary of Defense, who shall be the Chairman of the Committee.

(2) The Secretary of Agriculture.

(3) The Secretary of Commerce.

(4) The Secretary of Energy.

(5) The Secretary of Health, Education, and Welfare.

(6) The Secretary of Housing and Urban Development.

(7) The Secretary of the Interior.

(8) The Secretary of Labor.

(9) The Secretary of Transportation.

(10) The Attorney General.

(11) The Chairman, Council of Economic Advisers.

(12) The Director of the Office of Management and Budget.

(13) The Director of the United States Arms Control and Disarmament Agency.

(14) The Administrator of the Environmental Protection Agency.

(15) The Director of the Community Services Administration.

(16) The Administrator of General Services.

(17) The Administrator of the Small Business Administration.

(18) The Chairman of the United States Civil Service Commission.

(c) The Committee shall advise, assist, and support the Secretary of Defense's Economic Adjustment activities.

(d) The Secretary of Defense shall provide all necessary administrative support for the Committee.

SECTION 3. *Responsibility of Executive Agencies.*

(a) The head of each agency represented on the Economic Adjustment Committee shall designate a permanent representative to: (1) serve as liaison with the Secretary of Defense's economic adjustment staff, (2) coordinate agency support and participation in assistance projects, and (3) assist in resolving community impact problems.

(b) All Executive agencies shall:

(1) Support, to the extent permitted by law, the economic adjustment assistance activities of the Secretary of Defense. Such support shall include the use and application of personnel, technical expertise, legal authorities, and available financial resources to the extent required to provide a coordinated Federal response to the needs of individual communities, States, and regions adversely affected by necessary Defense changes.

(2) Afford priority consideration to community requests for Federal technical assistance, financial resources, excess or surplus property, or other requirements that are part of a comprehensive plan used by the Economic Adjustment Committee.

SECTION 4. *Construction.* Nothing in this Order shall be construed as subjecting any function vested by law in, or assigned pursuant to law to, any agency or head thereof the authority of any other agency or officer or as abrogating or restricting any such function in any manner.



The White House,
March 27, 1978.

Summary of Completed Military Base Economic Adjustment Projects 1961-1990

Economic adjustment assistance is often required to alleviate serious local impacts of certain Defense program changes. Impacts may result from major realignment actions that reduce local employment (base closures, reductions-in-force, and contract cutbacks). Other actions may increase Defense activity and place new demands on communities for increased public services (sewer, water, roads, schools, etc.) Changes can impact on individuals and have secondary effects on area businesses, local governments, and other elements of the local economy.

Economic impact is a factor of consideration in the Defense decision-making process. To the extent possible, Defense actions are implemented in a manner that will minimize the impact. When a serious impact is unavoidable, the Department takes the lead in efforts to alleviate the problem. An Economic Adjustment Program was initiated for this purpose in May 1961. Since 1970, adjustment assistance has been rendered through the President's Economic Adjustment Committee (EAC), composed of 18 Federal departments and agencies and chaired by the Secretary of Defense. The Office of Economic Adjustment (OEA) serves as the permanent staff for the Committee.

The EAC works with local, state and federal agency representatives to develop strategies and coordinate action plans to generate new job opportunities and to alleviate serious social and economic impacts resulting from the Defense changes. Wherever possible, former military bases are converted for productive civilian uses, i.e., airports, industrial parks, schools, hospitals, recreational areas, etc. Available federal, state and local government resources are utilized to spur private sector investments and jobs.

To measure the overall adjustment progress of communities affected by military base closures alone during the past twenty-nine years, an updated survey of job generation and base resale experience for nearly 100 communities was conducted in April through June 1990. The survey measures the replacement job generation and reuses for the former bases as accomplished and reported by the communities themselves.

This summary of military base economic adjustment projects identifies the military and civ-

ilian job losses, the replacement of civilian jobs, and the principal industrial/commercial/public reuse activities, and the individual community contacts who can furnish additional information.

In total, the following collective experience has been recorded.

New Jobs Replace DoD Civilian Losses: A total of 158,104 civilian jobs are now located on the former Defense facilities to replace the loss of 93,424 former civilian DoD and contractor jobs.

New Educational Opportunities: A number of four-year colleges, and post-secondary vocational technical institutes or community colleges, as well as high school vo-tech programs have been established at former bases. The reuse of the former Defense facilities for new vocational technical education has provided a strong job-inducement contribution to future community economic development programs.

Student Enrollments: There are 73,253 college and post-secondary students; 25,055 secondary vo-tech students; and 62,156 trainees now receiving education and training at 57 former Defense bases.

Industrial and Aviation Uses: Office industrial parks or plants have been established at 75 of the former Defense bases. Forty-two of the former bases are being used as municipal or general aviation airports.

The base realignment impacts have ranged from the loss of 12,300 civilian personnel in the case of the Air Force depot and overhaul activity at Mobile, Alabama, to only 15 - 25 civilian employees in the case of several small communities affected by the closure of nearby aircraft control and radar stations.

In many instances, the loss of military personnel (up to 5,600 military in the case of Amarillo, Texas) may have significantly affected the community's regional economy. Military personnel, however, are not recorded in the local employment or work force statistics. The relocation of military personnel (136,823 positions in nearly 100 community projects) represents a regional income loss but not as direct employment loss to the area. For this reason, successful transition should in large part be measured against whether the DoD civilian job loss in the community has

been replaced by new jobs and economic activity on the former base facility.

It should be noted that the listing of the community reuse projects includes a small number where community recovery has not been sustained. In some instances, the cutbacks in federal programs since 1981 resulted in the closure of the facilities supported by federal funds. The listing of the projects is intended to provide a comprehensive picture as to the civilian reuse of former military bases by communities assisted by the EAC and the Office of Economic Adjustment during the 1961 to 1990 period.

The job generation and reuse information for the former military facilities, however, does not reflect the entire recovery experience for all Defense impact communities assisted by the EAC and the Office of Economic Adjustment since 1961. In the case of communities affected by contract cutbacks and personnel reductions, it is often difficult to trace the actual replacement effort beyond a three-to-four-year period following the cutback.

In the case of communities with available former base facilities, however, a reasonable measure of the long-term community adjustment process can be drawn between the civilian job loss at

the base and the subsequent base job replacement experience. The survey findings are conservative since they exclude secondary and off-base jobs.

Included also is a series of relevant articles from the *New York Times*; *Economic Development*; *Nation's Business*; *City and State*; *Governing*, *The States and Localities*; and an article from the Economic Development and Industrial Corporation of Boston.

As an additional part of EAC's technical assistance efforts, guidance manuals have been prepared on community recovery case histories, on base reuse planning, on property acquisition, and on controlling development-operating costs — in order to document the specific steps involved in the base conversion process.

The role of the EAC is to help communities "help themselves." The communities themselves are responsible for the productive reuse of the former Defense facilities to offset the closure of the Defense base.

The transition period (often 3-5 years) in securing new civilian uses can be difficult for many communities. Yet, the experience of communities affected by earlier base realignments clearly indicates the communities can successfully adjust to dislocations and base closures.

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Coden, Alabama Dauphin Island Air Force Station	<u>1971</u> 1972	<u>26</u> (112)	45	Marine Environmental Science Consortium	167(C) 16,000(S)	Dr. George F. Crozier, Director, Marine Environmental Science Consortium, P.O. Box 369-370 Dauphin Island, AL 36528 (205) 861-3702
Mobile, Alabama Brookley AFB and Mobile Air Materiel Area	<u>1965-69</u> 1969	<u>12,300</u> (1,070)	3,000	Teledyne-Continental Motors International Paper, International Systems, University of South Alabama, Mobile Airport Authority	1,400(C) 20,000(T)	Larry Cook, Manager, Mobile-Aerospace Industrial Complex 1891 9th St, Mobile, AL 36615 (205) 438-7334
Mobile, Alabama Theodore Army Terminal	<u>1965</u> 1965	<u>14</u> (-)	1,550	Degussa-Alabama Inc, Kerr-McGee, Linde, Ideal Basic Industries, Mobile Paint Mfg Co, Huls, Taylor-Wharton, Ultraform		Jay Garner, Mobile, Alabama Chamber of Commerce, P.O. Box 2187 Mobile, AL 36652 (205) 433-6951
Selma, Alabama Craig Air Force Base	<u>1977</u> 1978	<u>547</u> (1,863)	390	Superwood Inc, Tri Tech Services, Beech Aero Spares Services Inc, American Candy Co, Alabama State Trooper Academy, George Wallace Community College, Municipal Airport	100(C) 500(T)	Hugh Allen, Executive Director, Craig Field Airport and Industrial Authority, P.O. Box 1421, Selma, AL 36701 (205) 874-7419
Thomasville, Alabama Thomasville Air Force Station	<u>1970</u> 1971	<u>18</u> (110)	200	Thomasville Adult Adjustment Center		Dr. Parker Edwards, Director, Thomasville Adult Adjustment Center P.O. Box 309 Thomasville, AL 36784 (205) 636-5421
Kenai, Alaska Wildwood Air Force Station	<u>1972</u> 1974	<u>63</u> (380)	116	Kenai Native Association Inc, Wildwood Correction Center, Elderly Housing Center		Willa Konte, General Manager, Kenai Native Association, Suite 203 215 Fidalgo, Kenai, AK 99611 (907) 283-4851
Benicia, California Benicia Arsenal	<u>1964</u> 1965	<u>2,321</u> (32)	5,700	Exxon, Institutional & Financing Services, Unysis Corp, Universal Engr Corp, Corey Construction Co, Lathrop Construction Inc, Sperry Mgt Sys, Huntway Refinery, Ace Hardware		Karen O'Dowd, Economic Development Coordinator with City of Benicia 250 East L Street, Benicia, CA 94510 (707) 746-4215
Los Angeles, California Fort MacArthur (a)	<u>1974</u> 1975	<u>1,306</u> (750)	685	Los Angeles Unified School District, City Rec & Park Dept, Cabrilla Marina, San Pedro-Wilmington Skill Center, CA Conservation Corp San Pedro District, Los Angeles Harbor Dept	76(T) 3,000(S)	Joan Keith, Principle, San Pedro-Wilmington Skill Center, 920 W. 36th Street, San Pedro, CA 90731 (213) 831-0295
Malibu, California Nike Site 78	<u>1974</u> 1974	<u>=</u> (142)	40	Los Angeles County Fire & Paramedic Center		John Haggemiller, Assistant Chief Forestry, Los Angeles County Fire Department, 1320 N. Eastern Ave, Los Angeles, CA 90063 (213) 267-2481

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Palmdale, California Nike Site 04	<u>1974</u> 1976	= (142)	100	Los Angeles County Fire Center & Correctional Facility		John Haggemiller, Assistant Chief Forestry, Los Angeles County Fire Department, 1320 N. Eastern Ave, Los Angeles, CA 90063 (213) 267-2481
Rancho Palos Verdes, California Nike Site 55	<u>1974</u> 1974	= (91)	60	City Offices, Demension Cable		Bill Cornett, City Manager, 30940 Hawthorne Boulevard Rancho Palos Verdes, CA 90274 (213) 377-0360
Torrance, California Torrance Annex, Long Beach Naval Supply Center	<u>1973</u> 1974	<u>50</u> (-)	6	City of Torrance Park Facilities		Gene Barnett, Parks and Recreation Department, City of Torrance 3031 Torrance Boulevard Torrance, CA 90503 (213) 618-2930
Ventura County, California Oxnard Air Force Base	<u>1970</u> 1976	<u>293</u> (1,215)	1,300	Venura County Community College, Intersystems, George Bannister Co, US Navy, Oxnard High School District, Camarillo Airport, FAA, Numerous County Agencies	210(C) 840(S) 210(T)	James G. O'Neill, Airport Administrator, 295 Durley Avenue, Camarillo, CA 93010 (805) 388-4202
Colorado Springs, Colorado Ent Air Force Base	<u>1971</u> 1976-80	=	280	United States Olympic Committee Hqts, USOC Olympic Training Center, Hqtrs., National Governing Bodies for 16 Sports		Ronald Rowan, General Counsel, United States Olympic Committee, 1750 East Boulder St, Colorado Springs, CO 80919 (719) 632-5551
Green Cove Springs, Florida Atlantic Fleet Site	<u>1962</u> 1964	<u>324</u> (1,281)	650	Kelsey-Hayes, Kustom Karr, Sun State Marine, Price Brothers, Composite Pipe, Willis Barge, Pegasus Technologies, Great Lakes Dredge and Dock		Ed Stewart, Manager, Clay County Port Inc, P.O. Box 477, Green Cove Springs, FL 32043 (904) 284-3676
Key West, Florida Truman Annex (c)	<u>1973</u> 1986	<u>568</u> (3,356)	60	Property being developed into a hotel-marina-historic-residential area by the Truman Annex, Company expected completion Fall 1992		Peter Mayer, Vice President, Director of Development, 203 Front St, Truman Annex Key West, FL 33040 (305) 296-5601
Orlando, Florida McCoy Air Force Base	1974 1975	395 (2,812)	6,000	US Postal Service, Page Avjet, Federal Express, UPS, Emery, D.H.L., Airborne Express, Florida Southern College, Municipal Airport	600(C)	Boe Barrett, Government Services, Greater Orlando Aviation Authority P.O. Box 620004, Orlando, FL 32862 (407) 826-2496
Sanford, Florida Sanford Naval Air Station	1968 1969	230 (646)	1,400	Cobia Boats, Hardie Irrigation, Scottys, Lowes, Florida Gas Training Center, Central Florida Regional Airport, Codiso	975(T)	Stephan Cooke, Director, Sanford Airport Authority, PO Box 818, Sanford, FL 32771 (407) 322-7771
Albany, Georgia Albany Naval Air Station	1974 1978	341 (3,217)	2,000	Miller Brewery, Kroger Peanut Butter, Job Corps	1,200(T)	C. Lamar Clifton, Senior Vice President for Economic Development,

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
						First State Bank & Trust Company P.O. Box 8, Albany, GA 31703 (912) 432-8430
Brunswick, Georgia Glynnco Naval Air Station	1974 1976	344 (1,828)	2,500	Hyster, TPI International Airways, Insteel Construction, Systems Inc, Interior Products, Map International, Sossner Tap and Tool, Federal Law Enforcement Tng, Municipal Airport	400(C) 30,000(T)	Randal Morris, Executive Director, Brunswick & Glynn County Development Authority, P.O. Box 10790, Brunswick, GA 31521 (912) 265-2070
Decatur, Illinois Decatur Army Signal Depot	1962 1963	1,310 (27)	1,944	Bridgestone/Firestone Inc		D. R. Sullivan, Plant Controller P.O. Box 1320, Decatur, IL 62525 (217) 425-1231
Forest Park, Illinois Forest Park Naval Ordnance Plant	1971 1973	1,600 (6)	2,400	Regional Shopping Mall, US Postal Service Bulk Mail Center, Postal Bag Repair		Marlene Quandt, Village Clerk Forest Park, IL 60130 (708) 366-2323
Columbus, Indiana Bakalar Air Force Base	1970 1972	318 (81)	491	Cummins Engine, Indiana University, Purdue University, Rhoades Aviation, Flambeau, Indiana Vo-Tech, Municipal Airport	1,878(C)	Wendell Ross, Manager, Columbus Airport, Columbus, IN 47203 (812) 376-2519
Terre Haute, Indiana Defense Industrial Plant Equipment Center	1966 1967	253 (-)	1,100	Accurate Glass Inc, Allstate Mfg Co, Inc, Ampacet Corp, CBS/Sony Music Club, Con-Way Central Express, Ditigal Audio Disc Corp, Distributors Terminal Corp, Eldred Van & Storage, Inc, Ivy Hill Packaging, Jadcore Inc, Miller Business Forms		Phil Kesner, Redevelopment Specialist, Department of Redevelopment, 301 City Hall Terre Haute, IN 47807 (812) 232-0018
Salina, Kansas Schilling Air Force Base	1965 1966	326 (4,710)	4,200	Beech Aircraft, Tony's Pizza Inc, Kansas College of Technology, Salina Area Vo-Tech, SP Plastics, Kansas Color Corp, Scientific Engineering, Municipal Airport	735(C) 410(S)	Tim Rogers, Executive Vice President, Salina Airport Authority, Salina, KS 67401 (813) 827-3914
Topeka, Kansas Forbes Air Force Base	1973 1976	416 (3,739)	1,600	Forbes Industrial Park, State Dept of Corrections, Lario Enterprises, State Health Department, Municipal Airport, National Guard		Dennis Brock, Airport Authority, P.O. Box 19053, Topeka, KS 66619 (913) 862-2362
Houma, Louisiana Houma Air Force Station	1972 1972	18 (112)	1,000	Terrebonne Parish Vo-Tech, Terrebonne Assoc for Retarded Citizen, Kentwood Water, Texaco Inc, Air Logistics, ERA Helicopters, Houma Municipal Airport	820(S)	Mel Mallory, Airport Manager, Houma-Terrebonne Airport Commission, Station 1, P.O. Box 10158, Houma, LA 70383 (504) 872-4646
Lake Charles, Louisiana Chennault Air Force Base	1963 1964	252 (3,029)	4,000	Chennault Industrial Airpark Authority, Boeing Louisiana, Elsinore Aerospace, Sowell Tech Institute	2,950(C) 35(S) 450(T)	Ernest Broussard, Director, Planning and Development, PO Box 900, Lake Charles, LA 70602 (318) 491-1210

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
New Iberia, Louisiana New Iberia Naval Air Station	1965 1966	85 (1,025)	1,220	Air Logistics, Inc, Univ of S.W. LA Research Center, Teche Area VoTech, Hulthnance Drill Co, Carborundum, Loffland Bros, ERA Helicopters, Otis Engr Corp, Pelican Aviation Corp Acadiana Criminalistic Lab	350(S)	Rock H. Laseerre, Iberia Parish Airport Authority, 510 Avenue C, Suite A, New Iberia, LA 70560 (318) 365-7202
Bangor, Maine Dow Air Force Base	1968 1968	342 (5,479)	2,500	General Electric, Anzac Electronics, Hqts Bar Harbor Airways Inc, US Air Force, Univ of Maine, State Dept of Human Services, Municipal Airport Timberland Footware	2,000(C)	Donald Buffington, Director, Economic Development, City of Bangor, Bangor, ME 04401 (201) 945-4400
Charleston, Maine Charleston Air Force Station	1979 1981	23 (169)	97	Charleston Correctional Facility	150(T)	Jeffery Merrill, Director, Charleston Correctional Facility RR #1, Box 1400, Charleston, ME 04422 (207) 285-3307
Presque Isle, Maine Presque Isle Air Force Base	1961 1962	268 (1,259)	1,250	Biner Brothers, Indian Head Plywood, Wetterau Inc, Northern Maine Technical College, Northern Maine Regional Airport	540(C)	Larry E. Clark, Executive Director, Presque Isle Industrial Council, P.O. Box 831, Presque Isle, ME 04769 (207) 764-4485
Baltimore, Maryland Fort Holabird	1973 1977	2,805 (1,335)	1,800	Holabird Industrial Park, Universal Foods, Thrashers Furniture, Clean Air Inc, PPG, Riparus Corp, Gascoyne Lab, HS Processing, John D. Lucas Printing Co		Larisa Salamacha, Project Director, Baltimore Economic Development Corp, 36 South Charles St, Suite 1600 Baltimore, MD 21201 (301) 837-9305
Boston, Massachusetts Boston Army Base/ Navy Annex	1974-81 1977-83	(b)	3,600	Marine Industrial Park, Boston Design Center, Coastal Cement Corp, AuBon Pain, General Ship Corp, Emery World Wide, Mass Bay Brewery, First Trade Union Saving Bank, Boston Tech Center Stavis Seafood	100(T)	Donald A. Gillis, Executive Director, Economic Development and Industrial Corp of Boston, 9th Floor, 38 Chauncy Street, Boston, MA 02111 (617) 725-3342
Boston, Massachusetts Boston Shipyard - Charlestown (c)	1974 1979	5,552 (553)	3,700	Boston Redevelopment Authority, Immobiliare Ltd, Boston National Historic Park, Sail Magazine, MA General Hospital, MA Water Resource Authority, Commercial-Office Residential Complex		Bob Rush, Deputy Director, Harbor Planning & Development and John O'Brien, Navy Yard Project Manager, 33 3rd Ave, Charleston Navy Yard, Charleston, MA 02129 (617) 722-4300
Chelsea, Massachusetts Chelsea Naval Hospital (d)	1974 1979	326 (462)	130	Boston Architectural Team, DMC Energy Inc, First New England Consortium, Admiral's Hill Develop- ment, Marina		Robert Luongo, Director, Community Development, City Hall, Chelsea, MA 02150 (617) 889-0700
Chicopee, Massachusetts Westover Air Force Base	1974 1977	+150 (4,014)	2,900	Massachusetts Municipal Electric Co, Proctor and Gamble, Ludlow Technical Papers, Dennison Mfg Corp, Emery World Wide		Alan W. Blair, President, Westover Metropolitan Development Corp, 3911 Pendleton Ave, Chicopee, MA 01022 (413) 593-8421
Springfield, Massachusetts	1968	2,400	3,250	Digital Equipment Corp, Smith &	7,000(C)	Marc Hanks, Managing Partner with

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Springfield Arsenal	1968	(20)		Wesson, Hano Business Forms, Springfield Technical Community College, Springfield Armory National Historical Site		Economic Development Partners, Bank of Boston Building, 1350 Main St Springfield, MA 01103 (413) 787-1542
Watertown, Massachusetts Watertown Arsenal	1967 1968	2,306 (17)	1,360	Arsenal Mall, Lifeline Systems Inc, Arsenal Apartments, Howard Community Health Plan, Arsenal Park		Mark Boyle, Director, Planning and Community Development, Town of Watertown, 149 Main Street, Watertown, MA 02172 (617) 972-6417
Sault Ste Marie, Michigan Kincheloe Air Force Base	1977 1978	737 (3,074)	2,144	Five different correctional facilities, Chippewa County International Airport, Olofson Fabrication Services Inc, Fabricor Inc, Eclipse Inc, American Kimross Corp		Kathy Noel, Executive Vice President, Chippewa County Economic Development Corp, 119 Culley Kincheloe, MI 49788 (906) 495-5631
Baudette, Minnesota Baudette Air Force Station	1979 1981	30 (100)	25	Rapid River Grain & Seed Inc		Larry Larson, President, Rapid River Grain & Seed Inc P.O. Box 458, Baudette, MN 56623 (218) 634-2041
Duluth, Minnesota Duluth Air Force Base	1982 1984	446 (1,040)	200	Duluth Prison Camp, Natural Resource Research Institute, St Louis County & Land Dept, Plating Specialties, Minnesota Rust Proofing		John Grinden, Executive Director, Duluth Airport Authority, Duluth, MN 55811 (218) 727-2968
Wadena, Minnesota Wadena Air Force Station	1971 1973	15 (130)	30	Bell Hill Recovery Center		Audrey Schmitz, Bell Hill Recovery Center, P.O. Box 206 Wadena, MN 54682 (218) 631-3610
Greenville, Mississippi Greenville Air Force Base	1965 1966	242 (2,048)	325	Southern Fastners, Delta Aircraft Painting, AGAC, Head Start Schools, Drug & Alcohol Center, Homeless Shelters, Municipal Airport		Wayne Downing, Airport Director, Greenville Municipal Airport Greenville, MS 38701 (601) 334-3121
Kansas City, Missouri Richards-GeBaur Air Force Base	1977 1985	1,500 (2,400)	475	BTM Inc, Calvary Bible College, Electronic Institute, Southwest Tracor, US Air Force, Marine Corps Support Facility, Directorate of Financial Opns - late 1990, 540 employees, Richards-GeBaur Airport	510(C)	James Gerner, Assistant Director, General Aviation Airport, 414 East 12th Street, 9th Floor, City Hall Kansas City, MO 64108 (816) 274-2300
Neosho, Missouri Camp Crowder & Air Force Plant 65	1970 <u>1968-75</u>	1,200 (-)	3,500	Teledyne, Lazy Boy Chair Co, Talbot Wire, Crowder Industry, Moark Production, Crowder College, Municipal Airport	1,500(C)	Gib Garrow, Executive Vice President, Neosho Chamber of Commerce, Neosho, MO 64850 (417) 451-1925
Conrad, Montana Anti-Ballistic Missile Site	1972 <u>1975</u>	153 (20)	50	Cascade Campers Ltd, Intercontinental Truck Body, MK Distributing, Tiber Water Authority		Darrell Brown, Treasurer, Pondera County Economic Development Corp, Conrad, MT 59425 (406) 278-7525

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Glasgow, Montana Glasgow Air Force Base	1968 1979	309 (3,500)	24	St Marie Montana Military Retirement Community, County Maintenance, General Aviation Airport		Darlene Otten, Security Federal Saving Bank, P.O. Box 668, Glasgow, MT 59230 (406) 228-6361
Lewistown, Montana Lewistown Air Force Station	1971 1974	27 (163)	3	e		William Spoja Former County Attorney Lewistown, MT 59457 (406) 538-8767
Hastings, Nebraska Hastings Naval Ammunition Depot	1966 1966	240 (10)	1,650	Hastings Industries, TL Irrigation, Ebko Industries, Animal Research Center, Hastings Park, Good Samaritan Retirement Center, Central Nebraska Community College, Hastings Energy Center	3,000(C)	Dee Hausler, Chamber of Commerce, P.O. Box 1104, Hastings, NE 68901 (402) 462-4159
Lincoln, Nebraska Lincoln Air Force Base	1966 1966	396 (6,383)	3,000	Goodyear Tire, Brunswick Corp., Tri-Con Industries, Land and Sky Inc., Yasufuku Inc, Heinke Technology, Boomers Printers, Valentino's Inc, Dept of Corrections Minimum Security, Municipal Airport		Wayne Andersen, Executive Director, Lincoln Airport Authority, P.O. Box 80407, Lincoln, NE 68501 (402) 474-2770
Omaha, Nebraska Fort Omaha	1975 1976	49 (56)	228	Metropolitan Community College	6,500(C)	John Weber, Metropolitan Community College, P.O. Box 377 Omaha, NE 68103 (402) 449-8425
Sidney, Nebraska Sioux Army Depot	1967 1967	585 (2)	650	Sidney Warehousing Activities, Western Nebraska Community College, Glover Group, Cabela's Mail Order, Scouler Grain Co, Western Stockman Inc	300(C)	Anita Pennel, Chamber of Commerce, Sidney, NE 68162 (308) 254-5851
Reno, Nevada Stead Air Force Base	1966 1969	519 (2,133)	2,000	JC Penney Dist. Cntr, Precision Roll Products, Univ of Nevada Desert Research Institute, R. Donnelly Son's Bradford White West, Danlier Benz Freight Liner, Hidden Valley Ranch Foods Products, Municipal Airport	1,200(C)	Robert Shriver, Associate Director, Economic Development Authority of Western Nevada, 5190 Neil Rd, Suite 111, Reno, NV 89502 (702) 829-3700
Manchester, New Hampshire Grenier Air Force Base	1966 1966-75	138 (320)	3,200	Sanders Associates, Disogrin Industries, Summit Packaging, Armtec Industries, Municipal Airport		Jane Hills, Business Development Representative, Greater Manchester Development Corp, 889 Elm Street Manchester, NH 03101 (603) 624-6505
Burlington, New Jersey Burlington Army Ammunition Plant	1973 1977	520 (10)	500	Duplifax, Resource Equity Developers, Mothers Kitchens Inc, Able Ware- housing, Joint Burlingtons Economic Development Corp		Mayor Herman Costello City Hall, Burlington, NJ 08016 (609) 386-0200

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Edison, New Jersey Camp Kilmer	1963 1965	578 (426)	3,800	Livingston College of Campus of Rutgers Univ, Kaiser Aluminum, Revlon, Continental Can, Spaulding, Mattell Toys, Job Corps, Middlesex Co Vo-Tech School, Lightolier Co	3,500(C) 1,050(S) 463(T)	Barry Larson, Business Administrator, Edison Township, 100 Municipal Blvd, Edison, NJ 08817 (201) 287-0900
Edison, New Jersey Raritan Arsenal	1964 1964-65	2,610 (8)	13,100	RCA, American Hospital Supply, R.H. Macy, Singer, B.F. Goodrich, Nestle, GSA Depot, United Parcel Service, Lloyd American Electronics, Grant Liquor, Michelin Tires, Kirsch Co, Ramada and Holiday Inns, Middlesex Community College, American Can	4,088(C)	Peter Cook, Managing Principal, Summit Associates Inc, Raritan Plaza II, Raritan Center, Edison, NJ 08818 (201) 287-0900
Lumberton, New Jersey Nike Site 25	1974 1976	94 (-)	75	Lumberton Township Municipal Offices, Midway School for Learning Disabilities		Patricia Rainier, Clerk, Lumberton Township, P.O. Box 1860 Lumberton, NJ 08048 (609) 267-3217
Roswell, New Mexico Walker Air Force Base	1967 1967	379 (4,900)	3,000	Transportation, Mfg Corp, Levi Strauss, Job Corps, Christmas By Kreb's Co, Eastern New Mexico Univ, Municipal Airport	1,200C	Dennis Ybarra, Roswell Industrial Air Center, P.O. Box 5759, Roswell, NM 88201 (505) 347-2594
Newburgh, New York Stewart Air Force Base	1969 1971	1,011 (2,700)	1,000	United Express, American Airlines, Airborne International, Emery Air Freight, USDA Animal Import Center, New York Dept of Transportation, Air National Guard, General Aviation Airport		James P. McGuinness, Airport Director, Stewart International Airport, P.O. Box 6100, Newburgh, NY 12550 (914) 564-2100
New York City, New York Army Pictorial Center	1970 1972	388 (64)	1,070	American Museum of the Movie Image, Kaufman Astoria Studios		Ralph Blank, Controller, American Museum of the Movie Industry, 34-12 36th Street, Astoria, NY 11106 (718) 784-4520
New York City, New York Brooklyn Army Terminal	1976 1981	336 (54)	6,700	New York Rail Car Company, SAMCO Inc, Phase II building project (f)		Debra Alligood, Project Manager, New York City Public Development Corp, 161 William St, New York, NY 10038 (212) 619-5000
New York City, New York St Albans Naval Hospital	1974 1974	386 (517)	865	Veterans Administration Hospital, Roy Wilkins Park		Solomon Goodrich, Executive Director, Southern Queens Park Assoc. Inc, 119th Ave & Merrick Blvd, Jamaica, NY 11434 (718) 276-4830
Schnectady, New York Schnectady Army Depot	1966 1967	484 (15)	600	General Electric, PACO Inc, State of New York, Distribution Unlimited Inc, IBM		E. Graham Thompson, Senior Vice President, Northeastern Industrial Park Inc, P.O. Box 98, Guilderland Center, NY 12085 (518) 356-4435

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Voorheesville, New York Voorheesville General Depot	1966 1967	1,000 (20)	300	Scott Paper, Proctor & Gamble, Chrysler Car Distribution, Agway Feeds, State of New York		E. Graham Thompson, Senior Vice President, Northeastern Industrial Park Inc, P.O. Box 98, Guiderland Center, NY 12085 (518) 356-4435
Watertown, New York Watertown Air Force Station	1979 1981	24 (114)	498	Watertown Correctional Facility		Andrew Peters, Superintendent, Watertown Correctional Facility, Watertown, NY 13601 (315) 782-7490
Wilmington, North Carolina Air Force Interceptor Sqdn	1967 1976	4 (96)	487	US Air, Applied Analytical Industries, Air Wilmington Inc, Signa Tech Inc, NC Army National Guard, FAA Control Tower, Aeronautic Inc, International Airport		Robert Kemp, Airport Director, New Hanover International Airport, 1901 Hall Drive, Suite 201 Wilmington, NC 28405 (919) 341-4333
Bellefontaine, Ohio Bellefontaine Air Force Station	1969 1970	27 (136)	120	Ohio Hi-Point Joint Vo-Tech School, There are 10,000 adult evening students	600(S)	Marilyn Meyer, Superintend, Ohio Hi-Point Joint Vo-Tech School, RFD-2, Bellefontaine, OH 43311 (513) 599-3010
Columbus, Ohio Rickenbacker Air Force Base	1978 1984	380 (1,700)	625	Federal Express, Meisner Electric, Lockheed, Air National Guard, Army Reserve, General Aviation Airport		Rod Borden, Airport Manager, Rickenbacker Port Authority, 109 John Glenn Avenue, Columbus, OH 43217 (614) 491-1401
Port Clinton, Ohio Erie Ordnance Depot	1966 1967	1,885 (35)	1,200	AIM Packaging, Ares Inc, USCO Dist Services Inc, Scandura, Superior Mfg, P&T Products, Challenger Motor Freight, Uniroyal Engineered Products Toledo Edison Co, Panelite		Jeff Crosby, Manager, Erie Industrial Park, Port Clinton, OH 43452 (419) 635-4051
Toledo, Ohio Rossford Arsenal	1966 1967	1,885 (35)	3,900	Toledo Mold, Temp Glass, Glass Tech Inc, Ace Hardware Dist. Center, JC Baxter Tub Co, Surface Combusion, Toyota Redistribution Center, Michael J. Owens Tech College, Penta County Vocational School	4,570(C) 1,400(S)	Susan Webb, President, Ampoint, P.O. Box 911, Toledo, OH 43692 (419) 666-3222
Wilmington, Ohio Clinton-Sherman Air Force Base	1971 1973	613 (66)	4,000	Airborne Express, UNISETS, Ferno Washington, Inc, Laurel Oaks Vo-Tech, Industrial Park, Hydro-Lift Trucks, Southern State Community College, Electric Supply Co	800(C) 500(S)	Cynthia Hill, Executive Director, Wilmington Area Chamber of Commerce 69 North South Street Wilmington, OH 45177 (513) 382-2737
Burns Flat, Oklahoma Clinton-Sherman Air Force Base	1969-70 1970	381 (1,700)	400	Wagnor Electric, Haliburton Services, Jamesville Products, Western Oklahoma VoTech Center, Western Fabricators Co, Clinton-Sherman, Municipal Airport	450(C)	Mark McAtee, Manager, Clinton-Sherman Industrial Airport P.O. Box 100, Burns Flat, OK 73824 (405) 562-4526
Corvallis, Oregon Adair Air Force Station	1969 1973	180 (864)	105	Oregon, SouthWest Washington, Utah & Southern Idaho Laborers Training Trust, Oregon Fish & Wildlife Service,	150(S) 45(T)	Bill Duke, Director of Training, Oregon, SW Washington, Utah & Southern Idaho, Laborers Training

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
				Santiam High School, Adair Village Housing, Willamette Carpenters Tng		Trust, Rt 5, Box 325A, Corvallis, OR 97330, (503) 745-5513
Harrisburg, Pennsylvania Olmsted AFB and Middletown Air Material Area	1965-68 1969	10,050 (1,250)	2,800	Pennsylvania State University- Capital Campus, Penn State Dept of Transportation, National Guard, Municipal Airport	2,640(C)	Mathew M. Douglas, President, Capital Region Chamber of Commerce, P.O. Box 969, Harrisburg, PA 17108 (717) 232-4121
Lancaster, Pennsylvania Marietta Air Force Depot	1967 1968	750 (-)	636	Armstrong World Industries Inc,		Eugene Moore, Director of Public Relations, Armstrong World Industries Inc, P.O. 30001 Lancaster, PA 17604 (717) 396-2101
Philadelphia, Pennsylvania Franford Arsenal	1977 1983	3,400 (17)	2,000	Grafic Reproduction Services, Webster Spring Co, Philadelphia Biologies, Gordon-Breach Inc, Mechanical Specialties Inc		Mark Hankin, President, Hankin Management Co, P.O. Box 26767, Elkins Park, PA 19117 (215) 674-9660
Phoenixville, Pennsylvania Valley Force Army Hospital (g)	1973-74 1978	845 (546)	50	Valley Force Christian College,	200(C)	Daniel Baer P.O. Box Phoenixville, PA 19460 (215) 933-7725
York, Pennsylvania York Naval Ordnance Plant	1964 1964	1,092 (13)	1,600	Harley Davidson Inc		Frank Caster, Director of Human Resources, Harley Davidson Inc, York, PA 17402 (717) 848-1177
Aguadilla, Puerto Rico Ramey Air Force Base	1973 1977	709 (3,866)	1,500	Dupont Pharmaceutical, Univ of Puerto Rico, Job Corps, Digital Equipment, Hewlett Packard, Municipal Airport	1,000(C)	Jose I. Ortiz, Airport Manager, P.O. Box 20, Ramey, Puerto Rico 00604 (809) 891-2286
Newport, Rhode Island Newport Naval Base	1974 1978	484 (11,069)	2,500	Derecktor Shipyard, Bend Inc, Hughes Aircraft, Avid Corp, Syscon, McLaughlin Research, Raytheon, RCA Services Co.		Kenneth J. Willette, Director, Rhode Island Department of Economic Development, Gilbane Building, 7 Jackson Walkway, Providence, RI, 02903 (401) 277-2601
North Kingstown, Rhode Island Quonset Point Naval Air Station	1974 1978-80	4,500 (6,211)	7,500	Electric Boat Co, Newport Offshore, Cowa Plastics, IMS Inc, Toray Industries, Drew Oil Corp, C&W Transportation, Bristol Bay Seafood, Applied Environmental Technology, General Aviation Airport		Gary Lash, Associate Director, Property Management and Development Rhode Island Port Authority, 7 Belver Ave, North Kingstown, RI 02852, (401) 277-3134
Greenville, South Carolina Donaldson Air Force Base	1963 1964	672 (4,100)	5,253	Woolworth Distribution Center, 3M Company, Donaldson Area Vocational Education Center, Lockheed Aero Center, General Electric, Proctor & Gamble Inc, Amoco, Auto Zone Inc, General Aviation Airport	500(C)	Phillip Southerland, Executive Director, Donaldson Center, Greenville, SC 29605 (803) 277-3152
Edgemont, South Dakota	1967	512	4	Grain storage		Mathew Brown, Former Mayor,

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Black Hills Army Depot	1968	(12)				Box 629 Edgemont, SD 57735 (605) 662-7720
Smyrna, Tennessee	1969	470	1,539	Cross Continent Services, Cumberland Mfg Co, Better Built Aluminum Co, Square D Mfg Co, State Rehabilitation Center, Tenn Army National Guard, Corporate Flight Mgt, Independent Air Inc, Smyrna Air Center		Steve Fitzhugh, Building 644, Smyrna Airport, Smyrna, TN 37167 (615) 896-7736
Sewart Air Force Base	1971	(4,050)				
Amarillo, Texas	1968	1,511	600	Hughes Aviation, Levi Straus, Tasco	795(C)	Richard McCollum, Airport Manager, Amarillo International Airport
Amarillo Air Force Base	1969	(5,560)		Engineering, Texas State Technical Institute, Municipal Airport	5,250(T)	10801 Airport Blvd, Amarillo, TX 79111 (806) 335-1671
Big Spring, Texas	1977	909	575	IBI, Freecom, Fraser Industries,	126(C)	Hal Boyd, Manager, Big Spring
Webb Air Force Base	1978	(2,204)		Fiber Flex, Bureau of Prisons, Western Container, Southwest College for the Deaf, Municipal Airport	800(T)	Airpark, P.O. Box 3190, Big Spring, TX 79721-3190 (915) 263-8311 ext 201
Harlingen, Texas	1962	720	1,600	Levi Strauss, Texas Steel, Marine	2,800(C)	David Alex, President, Chamber
Harlingen Air Force Base	1963-64	(3,100)		Military Academy, Texas State Tech Institute, General Dynamics, Confederate Air Force, Valley International Airport	400(S)	of Commerce, P.O. Box 189, Harlingen, TX 78551 (512) 423-5440
Laredo, Texas	1973	700	2,200	Sanchez O'Brien Co, Webb County Tax		Humberto Garza, Assistant to
Laredo Air Force Base	1975	(1,998)		Assessor, K-Mart, Tracor Aerospace, Robertshaw Controls, So Texas Private Industry Council, Combust Engineering, Laredo City Offices, Municipal Airport		Airport Director, Laredo Inter- national Airport, 518 Flightline, Bldg 132, Laredo, TX 78041 (512) 423-5440
Mineral Wells, Texas	1974	1,219	1,638	Perry Equip Co, Optec Technology Corp,	400(C)	Greg Harrison, City Manager,
Fort Wolters	1975-77	(692)		Concepts Inc, Antler Antennas, S-Tec, Ford Mfg, Western Co of North America, Haliburton Resources Mgt, Tejas Home for Youth, Downing Heliport, Butler Ventamatic, Weatherford College		P.O. Box 339, Mineral Wells, TX 78067 (817) 328-1211
San Marcos, Texas	1963	30	750	Gary Job Corps Center,	2,200(T)	Albert Perkins, Director,
Camp Gary	1965	(1)		Municipal Airport		Job Corps Center, Box 978, San Marcos, TX 78666 (512) 398-6561
Sherman-Denison, Texas	1971	600	437	Denison Industries, Texas Instruments,	294(C)	Doyle Dobbins, General Manager,
Perrin Air Force Base	1972	(1,930)		Greater Texoma Utility Authority, Grayson County College, Local Government Offices, General Aviation Airport		Grayson County Airport, 4700 Airport Dr. Denison, TX 75020 (214) 788-2904
Sweetwater, Texas	1971	25	130	Texas State Technical Institute	650(C)	Robert Muegrove, Dean,

Community & Facility	Year of Impact Year of Acquisition	Civilian Jobs Lost (Military Transfers)	New Jobs On Base	Major Firms/Activities	College Vo-Tech Students	Community Contact
Sweetwater Air Force Base	1971	(100)				Instructional Studies, Texas State Technical Institute, Sweetwater, TX 79558 (915) 235-7300
Waco, Texas	1966	833	2,000	Elsinore Airframe Services Inc,	4,000(C)	Monica Faulkenberry, Director of Public Information, Texas State Technical Institute, Waco, Texas 76705 ((817) 867-4887
James Connally Air Force Base	1966	(2,980)		Chrysler Technologies, Airborne Systems, Aviation Systems Inc, Texas State Technical Institute, General Aviation Airport		
Moses Lake, Washington	1966	38	900	Northwest Airlines, Japan Airlines,	1,250(C)	David M. Bailey, Executive Manager, Port of Moses Lake, Grant County Airport, Moses Lake, WA 98837 (509) 762-5363
Larsen Air Force Base	1966	(3,947)		Boeing, Sundstrand Data Control, Big Bend Community College, Columbia Basin Job Corps, Municipal Airport	200(T)	
Madison, Wisconsin	1968	378	3,000	Hazelton Laboratories, Badger Display	6,000(C)	Charles Peterson, Business Manager, Dane County Regional Airport
Truax Field	1968	(2,658)		Madsen Corp, Omni Press, Venetian Marble, Madison Area Technical Madison Area Technical College, Dane County Regional Airport		Madison, WI 53704 (608) 246-3380
Total Civilians		93,424	158,104			
Total Military		137,823				

Summary of Completed Military Base Economic Adjustment Projects 1961-1990

Explanatory Notes

(C) — College students or post-secondary vocational-technical students.

(S) — Secondary or high school vocational-technical students.

(T) — Manpower development and other trainees.

^a Does not include the Middle Reservation still retained by DoD.

^b Jobs lost are included in the total figures for the Boston Naval Shipyard in Charlestown.

^c The former Charlestown Shipyard is being converted into a Commercial-Office-Residential complex with an estimated \$1.3 billion in private sector investment to complete full development.

^d The former Naval Hospital was redeveloped as a \$100 million (7.2 million EAC assistance) "Admiral's Hill" residential-commercial-recreational complex.

^e The Sky Bible Institute closed in 1983 due to declining enrollments. The community is now seeking to reuse the site as a Winter resort or youth camp.

^f Expected completion of Phase II in late 1990 will add 4,000 jobs when buildings are occupied.

^g Former installation site is currently experiencing environmental concerns that are causing the community to seek a return of the property back to the Federal Government.

EDITORIAL PAGE

Old bases should be recycled

THE FEDERAL GOVERNMENT'S DECISION to close 86 military bases and trim operations at a handful of others has, rather predictably, raised great concern among local officials about the economic impact of such a cost-cutting move.

We can't deny certain areas will feel the sting of the base closings. Civilian jobs will be lost and tax revenue will decline. School enrollment and the federal and state aid that's predicated on the number of students in a system will, in some instances, be threatened.

Local businesses catering to the needs of military families will also bear the burden. Some will scramble to find ways to replace lost revenue, but there's little doubt that in some of the more isolated areas, "going out of business" signs will be posted.

There's a remote chance that Congress will pass a law banning the closings. But that would seem to make a mockery of Congress' persistent plea that cuts be made in defense spending to help ease the federal deficit.

Nearly a year ago, in the Feb. 1, 1988, edition of *City & State*, reporter Elizabeth Voisin took an in-depth and, as it turns out, prescient look at how local governments have coped with military base closings during a 15-year period. Here are some of the encouraging statistics she uncovered: The 92,424 defense jobs lost during that period were replaced by 138,000-plus public- and private-sector jobs; 75 bases were converted into industrial or office parks; 42

became municipal or general-aviation airports; and more than 100 ex-military facilities were transformed into schools, from secondary and vocational schools to four-year colleges.

Only a handful of facilities were turned into jails, but that's where this latest round of base shutdowns presents local governments with their greatest window of opportunity.

The National League of Cities and the National Governors' Association have arrived at a compromise with the federal government that makes the abandoned military facilities available to local governments at no cost, provided the facilities are used for jails, drug-treatment centers or related community purposes. Should the land be developed for commercial purposes, however, the feds will sell it off at market value.

Considering the extremely dangerous situation that exists in today's prisons because of overcrowding, making these bases available for correctional purposes is a proposal that rates the highest priority. The money the federal government would earn by the sale of these facilities to commercial interests is a mere drop in the bucket, anyway. Imagine the impact on the U.S. drug trade if more state and local governments had a place to send criminals they're now turning loose because there's no place to incarcerate them.

And, yes, outfitting these bases as jails and hiring correction personnel would also have a healthy effect on local economies.

Cities Discover Boons In Closed Military Bases

BANGOR, Me., Aug. 21 — When the Defense Department announced in 1964 that Dow Air Force Base here would close, this Maine city was stunned and fearful. The closing would mean 5,000 military employees and their families, 12,000 people in all, would be leaving the area, removing a vital social and economic force in this city of 38,000 people.

Residents feared that schools would close and businesses would suffer. "I remember thinking the whole community was going down the tubes," said Scottie Stowell, director of the Greater Bangor Chamber of Commerce, who was then a secretary at a furniture store.

When the base closed for good in 1968, the Air Force's \$17 million annual payroll was gone, and a million square feet of empty buildings were left behind. But Bangor's economy did not take a nose dive. In fact, as Bangor and other cities across the country have found, despite the wrenching effect of closing a base, the facilities left behind by the military can be put to use in ways that lead to economic benefits.

100 Bases Closed Since 1961

The Pentagon has closed about 100 bases since 1961 as it has consolidated operations, donating the facilities to local governments. And according to John Lynch, associate director of the Defense Department's Office of Economic Adjustment in Washington, all but a handful of the bases have been successfully used by municipalities for some other purpose.

Some, like the Defense Industrial Plant Equipment Center in Terre Haute, Ind., are now industrial parks. The Long Beach Naval Supply Center was converted into a recreation complex by the City of Torrance, Calif.

Mr. Lynch said that the versatility of military facilities meant that closing a

base could often be far less harmful to a community than, say, the closing of a military contracting plant, which may have limited additional uses.

Base conversions "are the only area where conversion has succeeded, not because of what the Department of Defense does necessarily but because the communities helped themselves," said Sanford Gottlieb, senior analyst for the Center for Defense Information, a 15-year-old independent group that monitors the Pentagon.

In Bangor, 49 new businesses and a branch of the University of Maine have opened, bringing 2,500 jobs and using buildings on the 2,000 acres the military left behind. The city opened a commercial airport on the former base that was successful enough that the city built a \$2 million terminal in the 1970's. Twenty additional buildings have been built, including a Hilton Inn. The population has recovered somewhat, to about 32,000.

Most former military bases, like Dow, have been used for a variety of purposes. Quonset Point Naval Air Station in North Kingstown, R.I., is now home to a number of businesses and is a general aviation airport.

Others have not been so successful. Glasgow, Mont., has not recovered from the closing of a nearby Air Force base in 1968. More than 300 civilians lost their jobs and 3,500 military personnel left. Since then the town has not been able to find a permanent use for the base. The population has been cut in half, schools have closed and businesses have failed.

"I think a lot of the problem has been promotion," said Willard Bruce, manager of Valley County Airport Enterprise, the new name for the base. The area is also remote, far from interstate highways and 270 miles from the closest large city, Great Falls.

'No Overnight Successes'

Even when a former base is well-placed geographically, the process of converting it to civilian use is long and difficult.

"There are no real overnight success stories," said Wayne Seifers, manager of Richards-Gebaur Airport in Kansas City, Mo., which until 1977 was an Air Force base. Mr. Seifers says Richards-Gebaur, a general aviation airport, is just beginning to prosper after years of idling.

In Bangor, planning started as soon as the closing was announced, and because of that, Mr. Lynch said, the city was able to avoid a sharp economic downturn.

Bangor civic leaders realized that although the area was remote, it was on an interstate highway and had a major geographic advantage: it was on the northern edge of the Great Circle air route to Europe. City officials believed that if they could provide flight service to international charter companies, which need intermediate stops for refueling and immigration services, they could reap a fine profit for the airport, which had an 11,440-foot runway, large enough to accommodate any size airplane.

By 1970, Bangor had persuaded the Federal Government to offer immigration services in a converted B-52 hangar and was handling 2,500 charter flights a year. In 1975, the city built a \$2 million international arrivals building.

Attracting industry was made easier by the airport's success, said Richard Kinnier, eastern regional director for the Office of Economic Adjustment.

This summer the General Electric Company is expanding two of its four buildings in Bangor. And, almost 20 years after the Air Force left, Bangor's success is luring the military back. A \$29 million radar facility developed by General Electric for the Air Force has been completed and will employ about 400 people, including 250 Air Force personnel.

Disposal of Surplus Real Property

For Public and
Private Use



General
Services
Administration

CONTENTS

Foreword	1
I. General	2
II. Disposal to Local Governments and Institutions	6
III. Public Sales	9
APPENDIXES	
"A" Laws Authorizing Disposal of Surplus Real Property to Local Governments and Institutions	13

DISPOSAL OF SURPLUS REAL PROPERTY

FOREWORD

The Federal Property and Administrative Services Act of 1949 provides the statutory means whereby most Federal real property holdings which Federal agencies find are no longer required for their needs and for the discharge of their responsibilities are reported to the General Services Administration for (1) utilization by other executive agencies having a requirement for such property, or (2) disposal as surplus property, in accordance with authorization provided in the Act and in certain other laws relating to the disposal of surplus real property (Appendix "A").

GSA does not dispose of public domain lands, national forest lands, or national park lands. Also, the 1949 Act permits continued disposition of certain real property by Federal agencies holding such property, where disposal of the property is an integral part of the agency's statutory responsibility; therefore, these properties are not "excess" properties within the meaning of the term as used in the 1949 Act. The disposition of residential properties by the Department of Housing and Urban Development, recreational and industrial sites by the Tennessee Valley Authority, farm properties acquired by the Department of Agriculture by mortgage foreclosure or other authorized means, are examples of disposal activities conducted by other agencies under laws not affected by the enactment of the Federal Property and Administrative Services Act of 1949.

The various Federal agencies may dispose of improvements, structures and fixtures which they designate for disposition without the underlying land.

This pamphlet provides answers to some of the questions frequently asked about the disposal of surplus real property by the General Services Administration. Information concerning specific surplus properties available for sale may be

April 1988

obtained from GSA regional offices whose addresses and the geographical areas they serve are shown on the back cover.

I. GENERAL

DEFINITIONS:

- (a) The term "excess property" means any property under the control of any Federal agency which the head of the agency determines is not required for the needs and the discharge of the responsibilities of the agency.
- (b) The term "surplus property" means any excess property which the Administrator of General Services determines is not required for the needs and the discharge of the responsibilities of all Federal agencies.

How does real property become surplus?

Reports of excess real property containing essential descriptive data and information about specific properties are submitted by the agencies which have been using the properties to the appropriate GSA regional office. GSA notifies other executive agencies whose functions require the use of real property of the availability of specific excess properties. These agencies are encouraged to inspect the properties if it appears from the descriptive data that any of them may be suitable to fill agency needs which, if not satisfied by the use of excess property, would necessitate expenditure of Federal funds for the acquisition and construction of the required facilities. Agencies have 30 days within which to notify GSA of their interest in excess property. If there is no Federal agency need, the property is then determined surplus to the Federal government's needs.

Why does GSA have the property appraised?

While other executive agencies are determining whether excess property can be appropriately used to fill their needs for real property, GSA inspects the property and arranges for an appraisal of its

fair market value. Maximum benefits to the community and to the Federal Government are realized when surplus real property is disposed of for its highest and best use. Since the determination of the highest and best use of the property is the keystone of the appraisal process, an appraisal of its fair market value in the early stages of disposal Planning provides vital information and data about local market conditions and potential, physical characteristics and capabilities of the property, etc., from which decisions can be reached concerning the desirability of subdividing properties, the method of disposal likely to produce the best results, or other factors pertinent to the disposal plan.

Most properties are appraised by real estate appraisers engaged in private practice who have registered with GSA their desire to render appraisal services, and whose qualifications have been reviewed and accepted by GSA. The time required to appraise properties reported to GSA varies with their size and complexity; normally 30 to 90 days is needed for this important phase of the disposal process.

After disposal plans have been completed and the decision has been reached as to the method of disposal to be employed, the appraisal provides a satisfactory means of determining the basis for negotiated disposals to non-Federal public agencies as well as the most acceptable guide for evaluating the adequacy of bids received in competitive bid sales offerings.

Does the owner from whom the Government acquired surplus property have any priority in its sale?

No. Section 23 (d) of the Surplus Property Act of 1944 provided for the negotiated sale of certain classes of surplus real property to former owners under a price preference formula. This provision of the Act was repealed by the Federal Property and Administrative Services Act of 1949, but all priorities and price preferences provided in the 1944 Act with respect to the disposal of surplus

real property under the 1944 Act were continued until December 31, 1949, when they expired. However, plans for the sale of properties, other than those primarily suitable for industrial or commercial use, are developed so as to afford former owners interested in repurchasing their former holdings an opportunity to bid for them in open competition with others, unless an analysis of the highest best use of the property at the time of its disposal indicates that the sale of the property in parcels is not likely to produce the highest monetary return from the sale of the property. When it is feasible to make a sales offering in parcels following generally the former ownership pattern, former owners who have indicated an interest in repurchasing their former holdings are notified of the availability of surplus real property for sale by written communication sent to their address of record in GSA regional offices. Former owners interested in purchasing former holdings available for sale are encouraged to notify the appropriate GSA regional office of their interest and any change in mailing address since the property was acquired.

How can civic and other local organizations assist GSA in the disposal of surplus real property?

Civic and other organizations in the community in which surplus real property is located can assist GSA in the prompt and efficient disposal of surplus real property in two important ways: First, they can expedite ultimate disposal of the property by assisting State and local agencies interested in acquiring the property or any portion thereof for any of the public purposes indicated in the section entitled "Disposal to Local Governments and Institutions" in the preparation of a comprehensive plan for its acquisition. This includes the development of a program of use and ways and means of funding any financial obligations which its acquisition may entail. Second, if the decision is reached that the property will not be acquired by State or local agencies for public use and is to be offered by GSA for public sale, civic organizations can supplement GSA's efforts to stimulate a competitive market for the property. In some

instances, community plans for industrial and commercial development are best served when new and supplemental industries are promoted on a selective basis. Local civic organizations interested in fostering these aims and objectives are frequently able, through their own efforts, to interest selected enterprises in actively participating in the competitive bidding which GSA sales plans contemplate. GSA regional officials are always glad to meet with groups interested in promoting the sale of surplus property in this manner, and to coordinate to the extent practicable GSA disposal plans with the aims and objectives of these groups.

Does GSA consider what impact disposal of a particular surplus property may have on the environment?

Yes. Under the National Environmental Policy Act (Public Law 91-190) and Executive Order No. 11514 dated March 5, 1970, on Protection and Enhancement of Environmental Quality, GSA assesses the potential environmental impact of any disposal of real property in order to avoid adverse effects and restore or enhance environmental quality to the fullest extent practicable.

In making plans for the disposal of surplus property does GSA consider local development plans and programs?

Yes. Public bodies, and regional and metropolitan comprehensive planning agencies are given an opportunity to advise GSA if the proposed disposal of a surplus property is incompatible with their development plans and programs.

Is surplus property available for lease?

Responsibility for the care and custody of surplus real property pending its disposition is normally vested in the Federal agency which has been using it. During this period the agency may, with GSA's approval, lease all or part of the property, provided (1) the lease is for a period not exceeding one year, (2) the lease is revocable on not to exceed 30 days' notice, and (3) the use and occupancy will not interfere with, delay, or retard the disposal of the property.

II. DISPOSAL TO LOCAL GOVERNMENTS AND INSTITUTIONS

Do local governments and institutions have an opportunity to acquire surplus real property?

Regulations governing the disposal of surplus real property provide for notice to be given to eligible public agencies of surplus property which may be disposed of to such agencies in accordance with the statutory authorities cited in Appendix "A".

The notice is given prior to any public advertising, negotiation, or other disposal actions with regard to surplus real property which GSA determines is available for disposal under these statutes. The notice, which is given by certified mail as soon as the property is determined to be surplus to the needs of the Federal Government, is sent to the Governor of the State in which the property is located, to the County Clerk or other appropriate official of the county in which the property is located, and to the Mayor or other appropriate official of the city or town in which the property is located. The notice is also given to any regional and metropolitan comprehensive planning agencies. In addition, a notice is posted in the post office which serves the area in which the property is located, and in other prominent places such as the State Capitol building, county building, courthouse, town hall or city hall. Finally, copies of the notice are sent to regional offices of Federal agencies which participate in the determinations required by law to be made as a part of the disposal process. The notice requires an eligible public agency desiring to acquire the surplus property under the statutory authorities cited in Appendix "A" to so inform the GSA regional office which dispatched the notice in writing during a period of 20 days following the date of the notice. If no response is received within the specified period, GSA assumes that no public agency desires to acquire the property and proceeds with plans to dispose of the surplus property by public sale.

If a public agency is interested in acquiring the property, its response to the notice must:

- (a) Disclose the contemplated use of the property;
- (b) Contain a citation of the applicable statute or statutes under which the public agency desires to procure the property (see Appendix "A");
- (c) Disclose the nature of the interest, if an interest less than fee title is contemplated;
- (d) State the length of time required to develop and submit formal application for the property. (Where a payment to the Government is required under the statute or statutes, include a statement as to whether funds are available and, if not, the period of time required to obtain funds); and
- (e) Give the reason for the time required to develop and submit a formal application.

GSA promptly reviews each statement of intention received in response to the notice and, based upon the facts and circumstances involved, including the potential suitability of the property for the use proposed, determines what constitutes a reasonable period of time to allow the public agency to develop and submit a formal application for the property. The review and determination is coordinated with the regional office of the Federal agencies participating in the statutory determinations. The public agency is notified of the decision and provided with such further instructions as may be required to proceed with the acquisition of the property.

Application forms for the transfer of property for health or educational use may be obtained from the appropriate Regional Representative of the Department of Health and Human Services or the Department of Education. Application forms for the transfer of property for park and recreation use may be obtained from the appropriate Regional Representative, Department of the Interior. Application forms or instruction for all other transfers may be obtained from GSA regional offices.

What discount price preference provisions are afforded public agencies in acquiring surplus real property?

Public Park or Public Recreational Area
... Up to 100% Public Benefit Allowance

Historic Monument
... Without monetary consideration

Public Health or Educational
... Up to 100% public benefit allowance

Wildlife Conservation
... Without consideration

Public Airport
... Without consideration

Negotiated sales (without use restrictions)
... Fair market value

What is the range of public health and educational uses for which surplus real property may be acquired?

Policy guidelines prescribed by the Departments of Education and Health and Human Services provide that only those activities devoted to academic, vocational or professional instruction, or organized and operated to promote and protect the public health, are eligible. Examples of such eligible activities are universities, colleges, junior colleges, junior or senior high schools, elementary schools or school systems, vocational or specialized schools, research activities, public libraries, and similar activities primarily educational in character; general and specialty hospitals, mental institutions, clinics, health sanitation activities (including water and sewer departments), facilities providing public health services, facilities to assist the homeless, and similar activities devoted primarily to the protection and promotion of public health. The program of an institution eligible for a transfer must contemplate use of the property as an integral part of an activity of the kind described. The activity must obtain such licenses for operations as may be required by State and local law.

Use of the public property applied for must be for a fundamental educational or public health purpose. Examples of such fundamental uses are classrooms, vocational shops, libraries, laboratories, auditoriums, gymnasiums, cafeterias, dormitories, faculty housing, infirmaries, recreational facilities, hospitals, clinics, facilities providing public health services, and similar utilization. The property applied for must be for a purpose for which the eligible organization would be authorized to expend its own funds to acquire.

Additional information concerning policies and procedures governing the disposition of surplus real property for educational or public health purposes may be obtained by communicating with the appropriate Regional Representatives of the Departments Education and Health and Human Services.

III. PUBLIC SALES

Who sells what?

Surplus properties not disposed of to public agencies or institutions in accordance with the preceding section are ordinarily offered for sale by GSA regional offices, after advertising, on a competitive bid basis. Surplus structures and other improvements located on land to be retained by the Government are normally offered for sale by the agency having care and custody over the land. Land and improvements held by the Departments of Defense, Agriculture, and Interior, having a fair market value of less than \$1,000 are offered for sale by those departments.

What is for sale and where?

Scheduled sales are widely publicized through paid advertising and announcements in news papers, magazines and trade journals and through radio, television and direct mail. They also are listed daily in the publication "Commerce Business Daily" available on a subscription basis from:

Superintendent of Documents
Government Printing Office
Washington, D. C. 20402

Mailing lists are maintained for each GSA region of persons who have indicated an interest either in a particular property in the region or a type of property which might be come available in the region. It is advisable to request inclusion on these mailing lists, furnishing such details as the type, location and size of property desired. Request forms may be obtained from the disposal officer in the appropriate region(s). Announcements of the availability of such property and the procedure for acquiring it will be sent directly to mailing list prospects.

What selling methods are used?

GSA sells surplus real property by:

- sealed bid
- public auction
- broker
- negotiation

SEALED BIDDING

When surplus property is to be offered for sealed bids, the appropriate GSA region will mail to all prospective purchasers, upon request "Invitation to Bid" form containing terms and conditions of sale, description of the property and complete instructions for bidding.

Bids are submitted, along with the required deposit and in line with the terms and conditions of the "Invitation" to the appropriate GSA regional office.

Bids are opened and read publicly on a specified bid-closing date. If the highest bid is acceptable, an award is made, usually within 60 days, and the successful bidder is notified. Deposits are returned promptly to all unsuccessful bidders when they are notified of the rejection of their bids.

PUBLIC AUCTION

The sale of surplus real property also is conducted by qualified auctioneers. The highest bidder must execute an earnest money deposit in a fixed amount predetermined and publicly announced.

BROKERS

Services of realty brokers are secured by contract to supplement other GSA sales efforts. Their services are sought principally in the sale of complex industrial properties and other special-purpose properties which require the organizational capabilities, diversified clientele, professional affiliations and other facilities and services of real estate broker organizations, to find bonafide prospective purchasers willing and able to buy such property, and thereafter to bring the negotiated sale to a satisfactory conclusion. These brokers are employed in the manner followed in similar commercial transactions under GSA regulations requiring wide public notice by the brokers of the availability of the property for sale. Brokers are selected from regional panels composed of qualified brokers who have communicated to GSA regional offices their interest in rendering this service.

NEGOTIATION

Surplus real property sales for private use may be negotiated under the following conditions:

- (a) When the estimated fair market value of the property does not exceed \$1,000;
- (b) Where, after advertising, bid prices (either as to all or some part of the property) are not reasonable or have not been independently arrived at in open competition;
- (c) Where the character or condition of the property or unusual circumstances make it impractical to advertise publicly for competitive bids and the fair market value of the property and other satisfactory terms of disposal can be obtained by negotiation.

An explanatory statement of the circumstances of each disposal by negotiation is prepared and submitted to the appropriate committees of the Congress in advance of each disposal when the property involved has a fair market value in excess of \$100,000.

GENERAL ADVICE TO BIDDERS

Give close attention to the instructions provided in the sales brochures and announcements concerning scheduled sales.

Carefully inspect the property being offered for sale before bidding. It will be sold on an "as is, where is" basis.

Failure of a bidder to be fully informed on the condition of the property will not constitute grounds for any claim for adjustment or for withdrawal of the bid.

Be prepared to submit an earnest money deposit with a bid, usually 10% of the total amount bid. Property is usually offered on a cash basis.

Does GSA consider local zoning in advertising property for sale?

Yes. When the property is located in an urban area, the local governmental body having jurisdiction over zoning and land use regulations is notified of the pending sale in order to allow that body the opportunity of zoning for the use of the land in accordance with local comprehensive planning. Prospective purchasers of the property are given as full and complete information, as available, concerning such zoning and land use regulations.

APPENDIX "A "

LAWS AUTHORIZING DISPOSAL OF SURPLUS REAL PROPERTY TO LOCAL GOVERNMENTS AND INSTITUTIONS

Historic Monument. Section 203 (k) (3) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 484(k) (3)) authorizes conveyance to any State, political subdivision, instrumentalities thereof, or municipality, of all the right, title, and interest of the United States in and to any surplus real and related personal property which in the determination of the Secretary of the Interior is suitable and desirable for use as an historic monument for the benefit of the public. Conveyances of property for historic monument purposes under this authority shall be made without monetary consideration to the United States: Provided, that no property shall be determined under this authority to be suitable or desirable for use as an historic monument except in conformity with the recommendation of the Advisory Board on National Parks, Historic Sites, Buildings and Monuments established by section 3 of the Act of Congress approved August 21, 1935 (49 Stat. 666) and only so much of any such property shall be so determined to be suitable or desirable for such use as is necessary for the preservation and proper observation of its historic features. Property conveyed for historic monument purposes may under certain circumstances be used for revenue producing activities to support the historic monument. Deeds conveying any surplus real property disposed of under this authority shall provide that the property shall be used and maintained for the purposes for which it was conveyed in perpetuity and may contain such additional terms, reservations, restrictions, and conditions as may be determined by the Administrator to be necessary to safeguard the interest of the United States.

Public Parks and Public Recreational Areas. Section 203 (k) (2) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 484(k) (2)), authorizes the Administrator of General Services, in his discretion, to assign to the Secretary of the Interior for disposal, such surplus property, including buildings, fixtures, and equipment situated thereon, as is recommended by the Secretary of the Interior as being needed for use as a public park or recreation area. The Act authorizes the Secretary to sell or lease such properties to any State, political subdivision, instrumentalities thereof, or municipality, and to fix the sale or lease value of the property to be disposed of, taking into consideration any benefit which has accrued or may accrue to the United States from the use of such property by any such State, political subdivision, instrumentality, or municipality.

Deeds conveying any surplus real property disposed of under this authority provide that the property shall be used and maintained for the purpose for which it was conveyed in perpetuity and may contain such additional terms, reservations, restrictions, and conditions as may be determined by the Secretary of the Interior to be necessary to safeguard the interest of the United States.

Public Airports. Section 13(g) of the Surplus Property Act of 1944 (50 U.S.C. App. 1622(g)), which is continued in effect by section 602(a) of the Federal Property and Administrative Services Act of 1949 and amended by Public Law 311, 81st Congress (50 U.S.C. App. 1622(a)-(c)), authorizes the conveyance or disposal of all right, title, and interest of the United States in and to any surplus real property or personal property (exclusive of property the highest and best use of which is determined by the Administrator to be industrial) to any State, political subdivision, municipality or tax-supported institution without monetary consideration to the United States. Such property must be determined by the Secretary, Department of Transportation to be suitable, essential, or desirable for development, improvement, operation, or maintenance of a public airport as defined in the Federal Airport Act, as amended (49 U.S.C. 1101), or reasonably necessary to fulfill the immediate and foreseeable future requirements of the grantee for development, improvement, operation, or maintenance of a public airport, including property needed to develop sources of revenue from non-aviation businesses at a public airport. This section provides specific terms, conditions, reservations, and restrictions upon which such conveyances or disposals may be made.

Health or Educational Use. Section 203 (k) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 484 (k)), authorizes the Administrator of General Services, in his discretion, to assign to the Secretaries of Education and Health and Human Services, as appropriate, for disposal of such surplus real property, including buildings, fixtures, and equipment situated thereon, as is recommended by the appropriate Secretary as being needed for school, classroom, or other educational uses, or for use in the protection of public health, including research. The Act authorizes the appropriate Secretary to sell or lease such properties to States or their political subdivisions and instrumentalities, and tax-supported medical and educational institutions, non-profit educational institutions, hospitals, or other similar institutions not operated for profit which have been held exempt from taxation under section 501 (c) (3) of the Internal Revenue Code of 1954, and to fix the sale or lease value of the property to be disposed of taking into consideration any benefit which has accrued or may accrue to the United States from the use of the property by any such State, political subdivision, instrumentality, or institution. The principal restrictive provision in the instrument of conveyance requires the property to be used continuously for a specified period for the specific purpose stated in the application for the property made to the Departments of Education or Health and Human Services.

Homeless Assistance. Title V of the Stewart B. McKinney Homeless Assistance Act, Public Law (P.L.) 100-77, as amended by P.L. 100-628, authorizes the identification and use of underutilized and unutilized property for use as facilities to assist the homeless and expands the meaning of section 203 (k) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 484(k)) to include leasing/permitting of facilities to assist the

homeless as a permissible use in the protection of public health. The Secretary of Housing and Urban Development collects data on Federal properties and identifies those suitable to assist the homeless. The General Services Administration and the Department of Health and Human Services make suitable properties available to private nonprofit organizations, units of local government, and states for use as facilities to assist the homeless. Ownership of property/buildings shall not transfer from the Federal Government; Leases/permits shall be for at least 1 year and shall be exercised in accordance with other applicable law. Federal landholding agencies may also make suitable underutilized property available to the homeless directly under their own authority.

Correctional Facility Use. Section 203 (p) (1) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 484(p) (1)), authorizes the Administrator of General Services in his discretion, to transfer or convey to the states, the District of Columbia, the commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, or any political subdivision or instrumentality thereof, surplus real and related personal property determined by the Attorney General to be required for correctional facility use by the authorized transferee or grantee under an appropriate program or project for the care or rehabilitation of criminal offenders as approved by the Attorney General. Transfers or conveyance under this authority shall be made by the Administrator without monetary consideration to the United States. The principal restrictive provision in the instrument of conveyance requires the property be used and maintained for the purpose for which it was conveyed in perpetuity or at the option of the United States, all such property revert to the United States.

Wildlife Conservation. Public Law 537, 80th Congress (16 U.S.C. 667b-d) provides that, upon request, real property which is under the jurisdiction or control of a Federal agency and no longer required by such agency (1) can be utilized for wildlife conservation purposes by the agency of the State exercising administration over the wildlife resources of the State wherein the real property lies or by the Secretary of the Interior; and (2) is valuable for use for any such purpose, and which, in the determination of the Administrator of General Services, is available for such use may, notwithstanding any other provisions of law, be transferred without reimbursement or transfer of funds (with or without improvements as determined by said Administrator) by the Federal agency having jurisdiction or control of the property to (a) such State agency if the management thereof for the conservation of wildlife relates to other than migratory birds, or (b) to the Secretary of the Interior if the real property has particular value in carrying out the national migratory bird management program. Any such transfer to other than the United States shall be subject to the reservation by the United States of all oil, gas, and mineral rights and to the condition that the property shall continue to be used for wildlife conservation

or other of the above-stated purposes or in the event it is no longer used for such purposes or in the event it is needed for national defense purposes title thereto shall revert to the United States.

Negotiated Sales to Public Agencies (without use restrictions). The Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 484(e) (3) (H)) authorizes the negotiated sale of surplus real property, subject to obtaining such competition as is feasible under the circumstances, to States, Territories, possessions, political subdivisions thereof, or tax-supported agencies therein, provided the estimated fair market value of the property and other satisfactory terms of disposal are obtained by negotiation. Deeds conveying surplus real property under this section contain no restriction on the use of properties conveyed. In accordance with further provisions of the section, an explanatory statement of the circumstances of each disposal by negotiation is prepared and submitted to the appropriate committees of Congress in advance of each disposal when the property involved has a fair market value in excess of \$100,000.

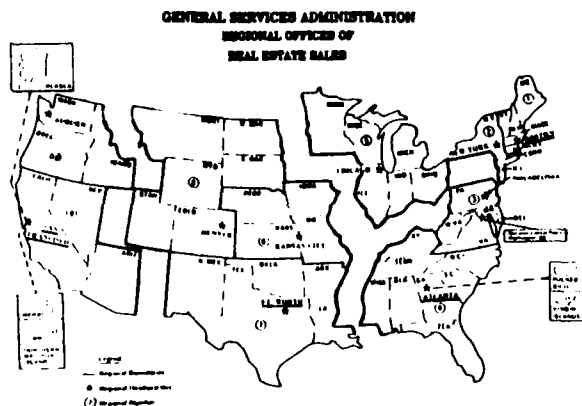
Other Specific Uses. For other laws authorizing disposition of property under GSA's control, including excess and surplus property, see:

Federal aid and other highways (23 U.S.C. 107 and 317)

Widening of public highways, streets, or alleys (40 U.S.C. 345(c))

Power transmission lines needful for or adaptable to the requirements of a public power project (50 U.S.C. App. 1622 (d))

Granting of Easements (40 U.S.C. 319-319e)



Additional information on the programs explained in this brochure may be obtained by writing to the Director of Real Estate Sales, General Services Administration, in the GSA regional office serving your area.

REGION 1

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New York, New Jersey, Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin, Puerto Rico, Virgin Islands

10 Causeway Street, Room 1075
Boston, MA 02222
617/565-5700

REGION 4

Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia, Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

75 Spring Street, SW
Atlanta, GA 30303
404/331-5133

REGION 7

Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming, Iowa, Kansas, Missouri, Nebraska, Arkansas, Louisiana, New Mexico, Oklahoma, Texas

819 Taylor Street
Fort Worth, TX 76102
817/334-2331

REGION 9

Arizona, California, Hawaii, Nevada, American Samoa, Guam, The Trust Territory of the Pacific Islands, Alaska, Idaho, Oregon, Washington

525 Market Street
San Francisco, CA 94105
415/974-9086

**Standard Lease and Purchase Agreement for the
Westover Metropolitan Development Corporation**

DATED:

LESSOR:

LESSEE:

BROKER:

LOCATION OF PROPERTY: Westover Air Force Base,

LEASE AGREEMENT made this day of , 19 , by and between Westover Metropolitan Development Corporation, a corporation duly organized under the laws of the Commonwealth of Massachusetts, hereinafter referred to as Lessor,

WHEREAS, the Lessor was created by act of the General Court of the Commonwealth of Massachusetts for the purpose of aiding the speedy and orderly conversion and redevelopment of properties at Westover Air Force Base to nonmilitary uses; and

WHEREAS, the Lessor has acquired title to certain buildings, and land at Westover Air Force Base, Chicopee/Ludlow, Massachusetts, by a deed from the United States of America dated December 20, 1976, and recorded in the Hampden County Registry of Deeds at Book 4365, Page 45.

WHEREAS, use by the Lessee of the premises hereinafter described seems advantageous and consistent with the general intent of the conversion of the Westover Air Force Base properties;

NOW, THEREFORE, it is agreed to by Lessor and Lessee as follows:

Lessor does hereby lease to Lessee certain property upon the terms and conditions set forth below.

I. Description of Premises

The exclusive premises leased are: _____

hereinafter referred to as "leased premises," with the proviso that the exact location of all lot lines and land area are subject to change after subdivision control law and master plan requirements are compiled with, together with rights of ingress and egress thereto to _____

II. Terms of Lease

Lessor and Lessee agree that this lease shall be for a year period commencing on _____, and ending on _____

III. Rental

During the term of the lease, the Lessee shall pay rent to the Lessor for its use and occupancy of the premises at the rate of _____ per year, payable in advance in monthly installments of _____

IV. Condition of Premises

Prior to the commencement of any use or occupancy of the premises or facilities by the Lessee, a joint inspection shall be conducted by representatives of the Lessor and Lessee. A written report shall be made of the condition of the premises, facilities, and related property; and any deficiencies which are found to exist will be noted in such report. Said report shall be

attached hereto and made a part of this lease. Lessor and Lessee agree that the leased premises is delivered "as is, where is;" and, as such, the Lessor makes no warranty as to such facilities and property, either as to its usability generally or as to its fitness for any particular purpose. At the termination of the lease, the Lessee shall turn over to the Lessor the premises and facilities in the same condition in which they were received, save for reasonable wear and tear, and save for any changes to the physical structure of the premises as have been made pursuant to the approval of the Lessor.

V. Assignment and Subleasing

The Lessee shall not assign or sublet the whole or any part of the leased premises without Lessor's prior written consent, which consent shall not be unreasonably withheld or delayed. Notwithstanding such consent, Lessee shall remain liable to Lessor for the payment of all rent and for the full performance of the covenants and conditions of this lease.

VI. Taxes, Assessments, and Insurance

(a) Lessee shall pay to the Lessor, or to the proper public authority, when and as the same become due and payable, all taxes, payments in lieu of taxes, assessments, and similar charges which, at any time during the terms of this lease and any extensions thereof, may be taxed, assessed, or imposed on the Lessor directly or upon the Lessee's interest in the leased premises. All tax payments or payments in lieu of taxes shall be made at least fifteen (15) days before the last day on which taxes may be paid without interest or penalty, except the payment for the period at the term end shall be made no later than the end of the term; and if the amount is not then determinable, it shall be made on the basis of the last prior tax with readjustment as soon as the correct amount is determinable.

(b) In the event payment is made directly to said public authority, Lessee shall furnish Lessor promptly with appropriate evidence of each tax, assessment, or other payment by Lessee. Lessee may, without postponement of payment, bring appropriate proceedings in the name of Lessor or Lessee, or both, for contesting the amount of the taxes or assessment, or to recover payments therefor, and agrees to save Lessor harmless from all costs and expenses in connection therewith. Lessor shall cooperate with Lessee with respect to the proceedings so far as reasonably necessary. Lessee shall be entitled to amounts recovered which relate to payments made by Lessee.

(c) The following insurance shall be carried at the expense of the Lessee protecting Lessor and first payable in case of loss to the Lessor or to such holders of mortgages of the leased premises as Lessor may from time to time require:

1. Fire and extended coverage insurance on all structures, fixtures, and personal property included in this lease in the amount of _____

The policy or policies evidencing such insurance shall provide that in the event of loss the proceeds of the policy or policies shall be payable to the Lessor.

2. The Lessee shall maintain with respect to the leased premises and the property, of which the leased premises are a part, comprehensive public liability insurance in the amount of Two Hundred Thousand Dollars (\$200,000.00) per person and Four Hundred Thousand Dollars (\$400,000.00) per occurrence with property damage insurance in limits of One

Hundred Thousand Dollars (\$100,000.00) per accident in responsible companies qualified to do business in Massachusetts and in good standing therein insuring the Lessor as well as Lessee against injury to persons or damage to property as provided; but the Lessee's liability under this clause shall not be limited to the maximum value of the insurance policy. The Lessee shall deposit with the Lessor certificates for such insurance at or prior to the commencement of the term, and thereafter within thirty (30) days prior to the expiration of any such policies. All such insurance certificates shall provide that such policies shall not be cancelled by the insurer without at least ten (10) days' prior written notice to the Lessor and Lessee herein.

VII. Alterations and Improvements

Lessee shall be required to obtain prior written consent of Lessor to make any alterations, installations, or improvements of any kind or character upon, over, or under the leased premises. All repairs, alterations, additions, and improvements to the premises by the Lessee shall be done in a good and workmanlike manner and in compliance with all applicable laws and/or ordinances, bylaws, regulations, and orders of any governmental authority and of the insurers of the building. All improvements, alterations, and additions to the building, including signs, machinery, fixtures, and equipment serving it, made or installed at any time by either the Lessor or Lessee shall be part of the building, except for any signs, machinery, fixtures, or equipment installed by the Lessee and used in the Lessee's business but not serving the building. In addition, any items as to which Lessor has agreed prior to installation shall be removable by Lessee shall not be part of the building. Lessee shall not permit any mechanic's liens, or similar liens, to remain upon the leased premises for labor and material furnished to Lessee or claimed to have been furnished to Lessee in connection with work of any character performed or claimed to have been performed at the direction of Lessee and shall cause any such lien to be released of record forthwith without cost to Lessor.

VIII. Utilities

(a) Lessee agrees, during the term and so long thereafter as Lessee's occupancy continues, to pay when due all charges for water, electricity, telephone, gas, sewer, and other services rendered to the leased premises and service connections made therefore, whether called tax, assessment, fee, wheeling charge, or otherwise.

(b) Lessee shall purchase and install meters (multiple if necessary) at locations to be indicated by the utility supplier at no cost to the Lessor for determining use of each utility, including gas, electricity, and water.

(c) Operation and maintenance of the existing heating system, including all necessary fuel and supplies, shall be the sole responsibility of the Lessee.

(d) Payment of metered utilities and sewerage shall be made by the Lessee directly to the utility supplier.

(e) Maintenance and repair for the utility distribution systems located on the leased premises shall be the sole responsibility of the Lessee. In the case of utility systems supplying utilities to both the Lessee and to other facilities in the area, the cost of the maintenance and repair of such systems to the Lessee and such other uses will be prorated.

(f) Maintenance and repair of the storm drainage system in the leased premises in accordance with local laws and customs pertaining to utility companies within the western Massachusetts area.

IX. Maintenance and Use

Lessee agrees during the term and so long as Lessee's occupancy continues:

(a) Within the leased premises only to provide maintenance services, which services shall include the furnishing of all labor, supervision, materials, supplies, and equipment necessary to furnish the structural maintenance, plumbing maintenance, electrical maintenance, maintenance of heating and cooling systems, exterior utility systems maintenance, pavement and ground maintenance for all surfaced roadways, taxiway aprons, walks and parking and loading areas, including grass cutting, shrub trimming, and tree pruning, trash and refuse removal and snow removal. The degree of maintenance services to be furnished by the Lessee hereunder shall be sufficient to assure weather tightness, structural stability, protection from fire hazards or erosion, and elimination of safety and health hazards, so that the leased premises being serviced will remain in the condition in which they exist at the commencement of this lease, ordinary wear and tear and damage by fire excepted. The Lessor, upon due notice, may inspect the facilities to insure performance of the maintenance set forth herein. All necessary keys to buildings and facilities occupied by the Lessee or its sublessees shall be made available to the Lessor upon request;

(b) That Lessor shall not be responsible for any loss or damage to person or property on the leased premises unless caused by wrongful act or negligence of Lessor;

(c) To save Lessor harmless and indemnified from any liability for injury, loss, accident, or damage to any person or property, and from any claims, actions, proceedings, and costs in connection therewith, including reasonable counsel fees, arising from omission, fault, negligence, or other misconduct of Lessee, or arising from any use made or thing done on or about the leased premises, or otherwise occurring thereon, and not due to omission, fault, negligence, or other misconduct of the Lessor.

(d) To use the premises only for industrial uses consistent with applicable zoning and the development plans for the premises and to procure any licenses and permits from time to time required therefor; not to permit open storage on the premises detrimental to the appearance of a planned light industrial development; and to require loading and unloading, and parking of cars for employees, customers and visitors, in connection with Lessee's business to be done on the leased premises and not on adjacent streets;

(e) To permit Lessor to examine the premises at reasonable times, and, during the year prior to expiration of the term, to show the premises to prospective purchasers and tenants; and

(f) At the expiration or earlier termination of the term promptly to yield up, clean and neat, the premises and all improvements, alterations and additions thereto, and all fixtures and equipment servicing the building and to remove Lessee's signs, goods and effects and any machinery, fixtures, and equipment used in the conduct of Lessee's business not servicing the building, and to repair any damage caused by said removal.

(g) At its expense, to keep the leased premises, building, and all fixtures and equipment thereon and therein in good repair, operating condition and working order, and to make all exterior and interior repairs and replacements necessary to that end, and to commence promptly and proceed diligently with any repairs or replacements required.

X. Railroad

Lessor hereby grants the Lessee the right to use with others any railroad facilities for which Lessor may acquire a use permit or any railroad facilities owned by Lessor which may serve the Westover Industrial Airpark. Costs of operating and maintaining said facilities shall be shared by the users thereof in proportion to their respective usage of such facilities.

The Lessor, or its agent, shall monitor the usage of said railroad facilities and shall be responsible for determining any amounts due from the respective users on account of such costs.

XI. Destruction of Leased Premises

Should a substantial portion of the leased premises, or of the property of which they are a part, be substantially damaged by fire or other casualty, or be taken by eminent domain, the Lessor may elect to terminate this lease and retain the insurance proceeds. When such fire, casualty, or taking renders the leased premises substantially unsuitable for their intended use, a just and proportionate abatement of rent shall be made, and the Lessee may elect to terminate this lease if:

(a) The Lessor fails to give written notice within thirty (30) days of intention to restore the leased premises; or

(b) The Lessor fails to restore the leased premises to a condition substantially suitable for their intended use within a reasonable period after said fire, casualty, or taking.

The Lessor reserves, and the Lessee grants to the Lessor, all rights which the Lessee may have for damages or injury to the leased premises for any taking by eminent domain, except for damages to the Lessee's fixtures, property, or equipment.

XII. Default

In the event that:

(a) The Lessee shall default in the payment of any installment of rent or other sum herein specified and such default shall continue for ten (10) days after written notice thereof; or

(b) The Lessee shall default in the observance or performance of any other of the Lessee's covenants, agreements, or obligations hereunder and such default shall not be corrected within thirty (30) days after written notice thereof; or

(c) The Lessee shall be declared bankrupt or insolvent according to law, which is not discharged within sixty (60) days from the date of adjudication, or if any assignment shall be made of Lessee's property for the benefit of creditors,

then the Lessor shall have the right thereafter, while such default continues, to reenter and take complete possession of the leased premises, to declare the term of this lease ended, and remove Lessee's effects, without prejudice to any remedies which might be otherwise used for arrears of rent or other default. The Lessee shall indemnify the Lessor against all loss of rent and other payments which the Lessor may incur by reason of such termination during the residue of the term. If the Lessee shall default, after reasonable notice thereof, in the observance or performance of any conditions or covenants on Lessee's part to be observed or performed under or by virtue of any of the provisions in any article of this lease, the Lessor, without being under any obligation to do so and without thereby waiving such default, may remedy such default for the account and at the expense of the Lessee. If the Lessor makes any expenditures or incurs any obligations for the payment of money in connection therewith, including, but not limited to, reasonable attorney's fees in instituting, prosecuting, or defending any action or proceeding, such sums paid or obligations incurred, with interest at the rate of six (6) percent per annum and costs, shall be paid to the Lessor by the Lessee as

additional rent. Notwithstanding the above, the Lessor will assess a penalty on any unpaid rent overdue for more than thirty (30) days. This penalty will be assessed at the rate of one percent (1%) per month upon the unpaid rental balance and will continue until the Lessee pays to the Lessor the entire amount due.

XIII. Compliance with Coordinate Legislation

The Lessee agrees to perform the following additional covenants:

(a) To make every reasonable effort in employing persons in its business to give to the fullest practicable extent preference to residents of the municipality.

(b) To conform the activities of the Lessee's business with the purposes of the Economic Development Plan developed in connection with the provisions of Chapter 672 of the Acts of 1974 of the Commonwealth of Massachusetts establishing the Westover Metropolitan Development Corporation and as said Chapter is amended from time to time.

XIV. Master Plan

All plans pertaining to construction, landscaping, size alterations, or improvements are subject to prior approval by the Lessor, and further subject to the Master Development Plan pertaining to building setback, lot coverage, architectural design and treatment, landscaping, signing, parking, location of loading docks, location and screening of outside storage and processing equipment and use of building materials, said Master Development Plan having been adopted by the Lessor pursuant to the provisions of Chapter 672 of the Acts of 1974 of the Commonwealth of Massachusetts establishing the Westover Metropolitan Development Corporation, and as amended, and being on file with the Town Clerk, town of Ludlow, Massachusetts.

XV. Option to Purchase

(a) Lessor hereby grants to Lessee an option to purchase the leased premises during any extension term granted in Paragraph XVI, provided, however, that the Lessee has complied with the terms and conditions contained in the Master Development Plan referred to in Paragraph XIV.

The Lessee shall exercise said option to purchase by delivering to the Lessor a notice of its intention to exercise said option by mailing a written notice, postage prepaid, at least thirty (30) days prior to the date upon which it desires the conveyance of the leased premises to take place, and Lessor agrees to convey the leased premises to the Lessee on the date so designated.

The sale price for said option to purchase shall be

in the event the option to purchase is exercised so as to pass title on

Said price shall be adjusted annually after to reflect change in the All Items Index of Consumer Prices compiled and published by the Bureau of Labor Statistics. Notwithstanding anything to the contrary contained in this subparagraph XV(a), the Lessor reserves the right to offer to convey the leased premises to the Lessee prior to

In the event such an offer is made by the Lessor and accepted by the Lessee, the base price shall be

Said base price shall be increased at the rate of six percent (6%) for each year or portion thereof which elapses subsequent to

(b) In the event the Lessee exercises said option to purchase the property, the deed conveying said property to the Lessee shall be a good and sufficient deed to the leased premises without warranty, express or implied, shall be subject to restrictions of record at the time said option is exercised, and shall contain the following covenants:

- (1) Grantee covenants that the property shall be used for industrial purposes or such other uses specified in the "Master Plan for Westover Industrial Airpark," as amended, prepared for the Grantor by CE Maguire, Inc., which plan is on file at the office of the Clerk, town of Ludlow, and to comply with the requirements therein specified; and not to use or devote the property, or any part thereof, to any other use than the said permitted uses or contrary to any of the applicable limitations or requirements of said Plan, or as it may be amended. This covenant shall run with the land and shall expire on December 31, 2005.
- (2) Grantee covenants that if within twenty (20) years of the date hereof it receives a bona fide offer to purchase the property herein conveyed, which offer the Grantee desires to accept, it shall give Grantor sixty (60) days' notice in writing of such bona fide offer. The Grantor shall have the first option to purchase the premises within the above-mentioned sixty (60) day period at a price to be determined as follows:

The Grantee and Grantor shall, within seven (7) days of the Grantor's receipt of such notice, each select an independent real estate appraiser who is then a member in good standing of the American Institute of Real Estate Appraisers. The two appraisers shall

then separately appraise the property and each shall prepare a written appraisal report setting forth the appraiser's professional opinion of its fair market value based in part upon comparable sales, income potential, highest and best use and other relevant factors. The two appraisers shall then confer and attempt to agree as to the fair market value of the premises. If within thirty-seven (37) days from the Grantor's receipt of notice from the Grantee, as hereinbefore provided, the two said appraisers shall fail to agree as to fair market value, they shall select a third independent appraiser with such qualifications; or, if because they shall have failed to carry out their responsibilities, no third appraiser is appointed, a third appraiser shall be selected by the Hampden County Superior Court. Said third appraiser shall forthwith make an appraisal of the property in the same manner as that required of the other two appraisers, and the fair market value as determined by him shall be determinative and binding upon the parties as the amount for which the property shall be repurchased.

XVI. Extension

The Lessee shall have the right to extend this lease for . Rental during said additional term shall be adjusted annually during said term to reflect change in the All Items Index of Consumer Prices compiled and published by the Bureau of Labor Statistics. The base rent for the purpose of rental adjustment shall be

XVII. Broker's Commission

XVIII. Notices

All notices and statements permitted or required to be sent hereunder shall be sent by registered or certified mail, postage prepaid, return receipt requested, addressed as follows:

If to Lessor: Westover Metropolitan Development Corporation
Westover Air Force Base
Chicopee, Massachusetts

If to Lessee:

or to such other address of which notice as aforesaid has previously been given. Any such notice shall be deemed duly given on the date of such mailing.

IN WITNESS WHEREOF, the Lessor and Lessee have hereunto set their hands and common seals this day of

LESSOR:
WESTOVER METROPOLITAN
DEVELOPMENT CORPORATION

By

LESSEE:

By

BROKER:

By

**The A. T. & S. F. RY. CO.
SPECIFICATIONS FOR INDUSTRY TRACK
CONSTRUCTION**

Alignment

Data for turnout alignment on lead track turnouts and industry track turnouts are given on the attached plan. The maximum degree of curvature, as shown on the plan, is 12°00', and must not be exceeded unless approved by the Division Engineer.

Reverse curves should be avoided wherever practicable; also, successive curves should be separated by at least 100 ft. of tangent, where practicable.

Superelevation on curves will be specified by Division Engineer. Where curves are superelevated, suitable transition spiral curves will be installed at the ends of curves where practicable, if directed by the Division Engineer. No superelevation will be placed on curves within the plant site area.

For all tracks over which Railway's engines operate, or where Railway Company's employees perform switching operations, alignment of tracks must be approved by Division Engineer.

Profile

Maximum grade of lead track, as shown on the plan, is 2.00%, and must not be exceeded unless approved by the Division Engineer. At all locations, excessive grades and frequent changes of grade should be avoided. Where grade line changes, appropriate vertical curves will be installed, where practicable.

In cut sections, to facilitate proper drainage, grade line should be uniform throughout the cut, if practicable; grades in cuts should preferably be not less than 0.30% and not more than 1.00%.

For all tracks over which Railway's engines operate, or where Railway Company's employees perform switching operations, profile of tracks must be approved by Division Engineer.

Grading

Roadway embankments shall be placed and compacted in layers to the specified "Standard Compaction" as determined by the Engineer. Soils having a standard compaction of less than 95 lbs/cu. ft. or a liquid limit of 50 or more should not be used if practicable to secure material from another source.

Fill section and cut section will be in accordance with the attached plan, unless otherwise advised. If soil conditions justify, slopes will be modified and/or sections will be widened, as specified by the Division Engineer. Fills over 20 ft. in height will have berms installed as directed by the Division Engineer; cuts over 20 ft. in depth will have benches installed as directed by the Division Engineer. Cut sections may be widened sufficiently to maintain drainage, if required.

Stabilized Subgrade

Where soil conditions, drainage conditions or amount of traffic justify, the upper portion of the subgrade shall be stabilized by thoroughly mixing of suitable chemical additives, such as cement or lime, with the soil before compaction, as directed by the Division Engineer. The additive to be used, the percentage of stabilizing material and the thickness of the stabilized layer will be specified by the Division Engineer.

Drainage

All corrugated metal pipes and arches shall be asphalt coated. In addition, where 12 gage steel is specified, they shall have asphalt invert paving. Any pipe that will be maintained by the Railway Company shall be 36" diameter or larger, unless approved by the Division Engineer.

At track ditch intercepts, rip rap shall be provided to protect the roadway embankment if necessary, as directed by the Division Engineer.

Trackwork — General

All work of tracklaying and surfacing shall be performed in first class workmanship manner in accordance with current accepted practice.

Ties

Ties to be new or good condition second hand and not be less than 6" x 7" x 8'-0". Unload and handle in such manner as not to damage ties. Ties shall not be distributed on roadbed before it is properly finished. In placing, center a.l of tie shall coincide with centerline of track, laid at right angles to the rail with wide face up. Hardwood ties should preferably be used on curves, if available.

Ties shall be spaced uniformly, spaced 19½ inches center to center.

Switch ties shall be located as shown on turnout plans.

Treated tie plugs of proper size to fill holes tightly shall be driven in old spike holes.

Tie Plates

All ties will have two metal tie plates installed, using tie plates designed for the rail section used. Plates shall be squarely placed with the shoulder snug against the rail. Cocked tie plates will not be permitted. Tie plates to be new or good condition secondhand.

Rail

Rail shall be 90-lb. per yard or heavier. No rail shorter than 16'-6" will be used. Rails must be free of base nicks and slots.

Rail must not be dropped. Unloading and handling shall be controlled so as to avoid breakage or other track material. Rail shall be placed with head up and with sufficient support under base to prevent bending.

Rail is to be laid with joints staggered not more than three feet from center of opposite rail. The best running side of relay rail head shall form the gage side of the rail as laid.

Bottom of rail, tie plate and top surface of tie shall be clean and smooth to provide for full bearing for rails and tie plates.

The use of torch for cutting track rail or for burning bolt holes is prohibited. Rail saw, rail chisel properly and expertly used for cutting and hand or power rail drill for forming holes shall be employed. Remove chips and burrs.

When necessary to bend rail, use approved rail bending device. Make bends uniform and accurate.

Rail Joints — Angle Bars and Bolts

Angle bars shall be properly fitted against the rail and firmly held by at least one track bolt in each rail end during rail laying operation. All joints shall be fully bolted, but remaining bolts may be installed after track is surfaced, if desired. If slotted bars are used, they shall not be spiked in slots. At rail ends,

web of rail and joint bar contact area shall be coated with Texaco No. 904 grease or equal for the full length of bar. Grease will also be applied for full length of rail through road crossings.

Compromise joint bars shall be used where rail size changes.

Track bolts, of proper size, fitted with approved spring washers, shall be fully tightened to proper tension.

Spiking

Each rail will be spiked with two spikes per tie on tangent track, staggered with inside spikes to the east or north, outside spikes to the west or south. Spikes shall be $\frac{5}{8}$ " x 6" or $\frac{5}{8}$ " x $6\frac{1}{2}$ ". On curves over six degrees, a third spike shall be driven on gage side of each rail. Track spikes shall be started and driven vertically with face of shank in contact with the rail and square with the rail so that face of spike will have full hold on rail base. Damage to tie timber fiber must be minimized. Spikes must not be stuck after head is down to snug contact with the rail base. Care must be taken not to overdrive and rail must not be gaged or struck with spike maul or other tool.

Gage

Gage of 4 feet $8\frac{1}{2}$ inches shall be accurately maintained.

Rail Anchors

Tracks over 400 ft. long shall have at least 8 rail anchors per 39' panel. Anchors shall not be placed on joint ties or ties adjacent to joint ties.

Gage Rods

On curves between 7 degrees and 10 degrees, four gage rods per 39 ft. panel shall be installed; on curves between 10 degrees and 12 degrees, five gage rods per 39 ft. panel shall be installed.

Switches, Frogs, Etc.

Switches, frogs, switch stands, derails, rail anchors, and other material shall be installed in accordance with standard or special plans, and shall be in proper adjustment upon completion. Lubricate slide plates beneath switch points with a graphite lubricant.

Weight of rail of turnout shall not be changed within limits of switch ties.

Ballast and Surfacing

Ballast material shall be approved by Division Engineer prior to installation, and shall be crushed rock, slag, cinders or similar stable material that will provide uniform support to the ties, will drain properly and is not chemically reactive.

Care must be used to insure even distribution of ballast in track. Ballast shall be inserted under the ties in convenient lifts (not less than two).

Care must be used on final lift to assure track is in proper cross level and that line and grade are in full accordance with engineers' stakes.

Top of track ballast shall be dressed parallel with top of rails to a depth of one inch below top of tie extending six inches beyond end of tie, then on two to one slope to sub-grade.

Ballast to be thoroughly tamped from each tie end to fifteen inches inside of rail. Centers are to be filled full but not tamped.

Maximum allowable adjustment in line after final surfacing is 6 inches.

Maintenance

Track being constructed should be properly maintained during period of construction, and until final acceptance.

All track ditches will be maintained and kept clean.

Regulations on Minimum Clearances, Crossings, Crossing Protection, Walkways, etc.

All construction will conform with current rules and regulations governing clearances, road crossings and crossing protection, walkways, construction, operation and maintenance on railroads issued by the appropriate Federal and state agencies.

Under Track Structures

The design of any under track structures must be approved by the Railway Company's Assistant General Manager-Engineering.

Other Details

If further details are required, reference should be made to current specifications for the laying of new track as adopted by the American Railway Engineering Association.

Acceptance of Work

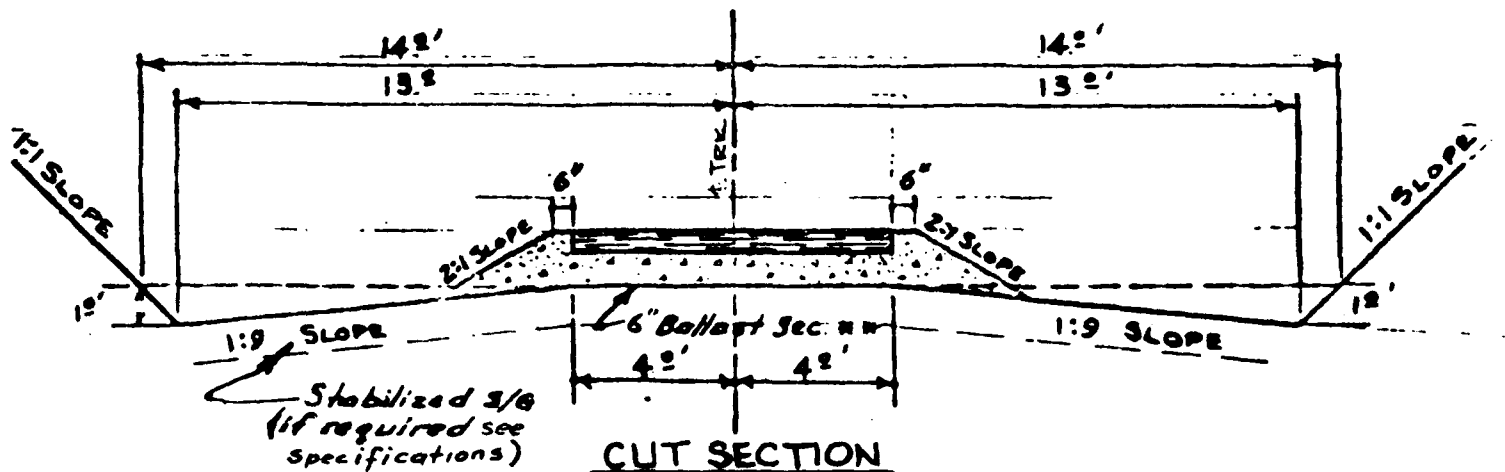
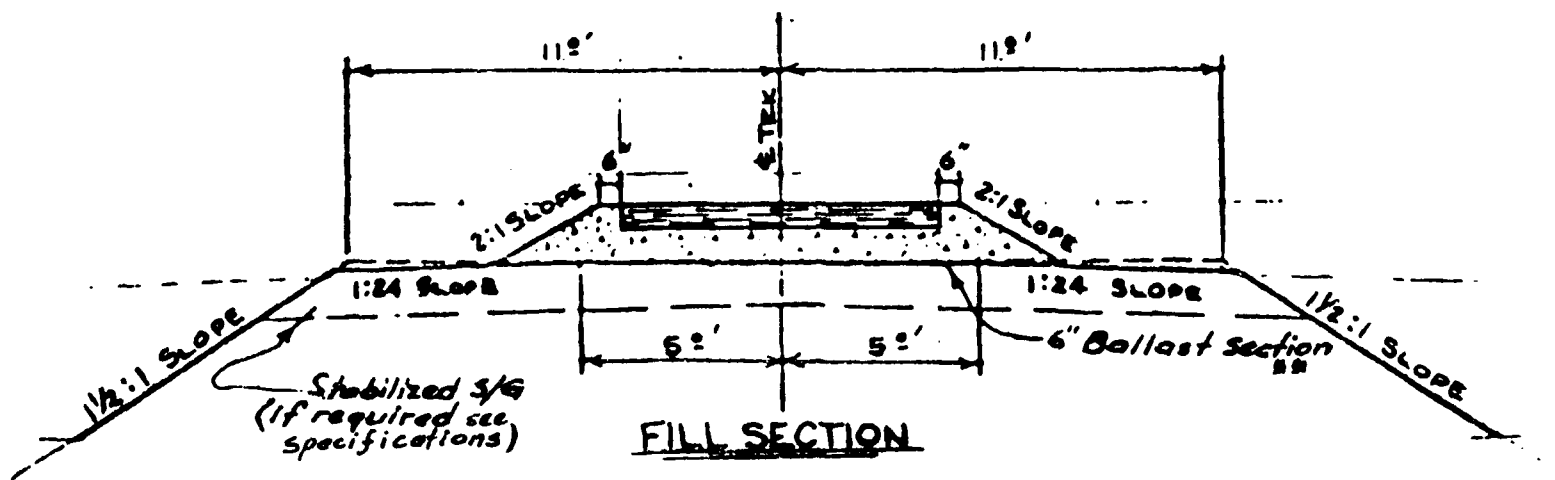
Trackage over which the Railway's rolling stock will operate must be inspected and approved by the Division Engineer, or his authorized representative, prior to any use of the trackage by the Railway Company.

Before final acceptance, all track shall be spot surfaced and accurately lined to remove all irregularities of cross-level, surface or line caused by settlement or compaction of ballast following traffic loading. Any ties not giving full support to rails shall be retamped. Bolts shall be retightened, if necessary, to bring to full tension, and spikes set down to full rail contact.

Chief Engineer System

Chicago, Illinois

September 15, 1975



DESIGN CRITERIA

ALIGNMENT-

LEAD TRACK (No. 10 TURNOUT) *
 (OUT OF MAIN TRK.) Degree of Equiv. Cv. 6°-05'-14"
 Radius of " " 941.68'
 Degree of Turnout 7°-25'-37"
 Radius of " " 772.00'
 PC Equiv. Cv. to Pt. of Sm 14.25'

INDUSTRY TRACK (No. 8 TURNOUT) *
 (OUT OF LEAD TRK.) Deg. of Equiv. Cv. 9°-30'
 Radius of " " 603.81'
 Degree of Turnout 11°-48'-13"
 Radius of " " 486.27'
 PC Equiv. Cv. to Pt. of Sm 6.13'

Maximum curvature 12°-00'

* Specifications are for 90 pound rail and may vary somewhat for heavier weights of rail.

GRADE-Maximum Lead track 2%

SURFACING

* * Where poor soil conditions or poor drainage exists, greater ballast depth may be required, as specified by Division Engineer.

GRADING

At switches the cut or fill section shall be widened at least 3 feet for a minimum of 100 feet in advance of the switch to provide safe footing; at locations where State rules and regulations require additional widening and walkways, installations will comply with all such requirements.

LEAD & INDUSTRY TRACK
THE A.T. & S.F. RY. CO.

C.E.S. 50135-1034 CHICAGO, ILL.
 SEPT. 15, 1975

CV. A	CV. B	CV. C
D=9°31'06"	D=12°00'	D=12°00'
Δ=7°09'10"	Δ=1°50'16"	Δ=8°59'26"
R=602.65'	R=478.34'	R=478.34'
T=37.67'	T=7.67'	T=37.61'
L=75.15'	L=15.31'	L=74.92'

